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Neonatoloji Biliminde merkezleşme önemlidir*

*Major centralization is important at Neonatology Discipline**

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***En üst Yoğun Bakım Ünitesi, Neonatoloji Prematüre Yoğun Bakım Birimleri olup, mortalitenin ve morbiditenin azaltılması nedeniyle de merkezleşme gereklidir.**

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Neonatoloji Döneminin önemi boyutunu irdelemek için, konu kaynaklardan sağlık, Tıp ve bu sağlık hizmet yapılanmasının irdelenmesi ile olgudaki kanıta dayalı bir boyut ile değerlendirilebilir ve önemi ortaya konulabilir.

Neonatoloji Uzmanlığı boyutu içinde, her birey kendi uzmanlığını öne alabilir, ama Neonatoloji 'nin Tıp Bilimi içindeki konumu ve boyutu incelemek ile daha net veriler ile algılanabilir ve durumun ortaya konulması için bu makale kaleme alınmıştır.

Prematüre Ünitesi boyutu ile başlayan Yenidoğan yaklaşımları, prematürelerde mortalite ve morbidite, uzun süreli takiplerinde de sağlıklı olmaları ve gelişmeleri ile elde edilen başarı ve burada çalışan sağlık elemanları, doktorların da özel eğitim gerekliliği boyutu ile özgün bir yandal olması gündeme gelmiştir. Her hekimin doğum salonunda yaşam desteğinin sağlanması için, öğrenmesi ve beceri kazanma boyutuna gelmiştir.

Yoğun Bakım Üniteleri sağlık yapılanmasının en üst noktası, teknolojik gelişim ve her türlü tıbbi yaklaşımlarının en üst düzeyi olması beklenildiği için, özgün eğitim yanında, doğumhane yaklaşımları açısından da birinci ve ikinci düzey sağlık yapılanması da standart oluşmuştur.

Eğer, genel sağlıklı olmak için gereken yaklaşımlar, birinci düzey bakım, hasta bakımı olan ikinci düzey etkin çalışmaz ise, yoğun bakımların altından kalkması beklenemez. Yenidoğan yapısında da gebelik ve izlemler etkin ve verimli olmaz, gerekenler yapılamaz ise, Neonatoloji Yoğun Bakımlarının yeterliliği konusu oluşamaz. Perinatoloji ve Neonatoloji iç içe geçen ortak Bilim Dallarıdır.

Salgın hastalıklarda bulaş zinciri kırılmaz ise, özellikle aşılma ile geometrik artış yerine aritmetik artış olursa, ancak bu durumda yoğun bakım etkin denilebilir. Burada belirtilmek istenen konu, genel sağlık yaklaşımında Perinatoloji yaklaşım dinamik olmaz ise Yenidoğan Yoğun Bakım Ünitelerinde etkinlik sağlanamaz.

Neonatoloji yaklaşımlarında bu açıdan sağlıklı gebelik, gebelik öncesi, sağlıklı bir nesil olması, izlem ve sorunlara derhal, etkin ve sonuca varacak yaklaşımları yapmak ile yoğun bakımlara gerek duymadan, bu olmayacağına göre daha seçici olgular ile yaklaşım hedeflenmelidir.

Bu açıdan genel sağlık yapılanması ile konu irdelenmesi uygun görülmüştür.

Özet

Neonatoloji Biliminde merkezleşme önemlidir

Amaç: Sağlık organizasyonları Sağlık Bakanlık temelinde oluşturulmakta, birey; gebelik ve bebeklerin hakları temelinde Bildirge, İnsan Hakları konusundaki hukuksal yaklaşımlar içinde resmi boyutta oluşturulmakta olup, bu Makalenin konusu olmaktadır. İkinci Dünya Savaşından sonra, İnsan Hakları yapısı ile Neonatoloji boyutu Bilim Dalı olarak giderek Yaşam Hakkı temelinde bilimsel merkezleşme ile, teknolojik olarak etkin ve verimlilik boyutunda olmuştur. Bu Makalede merkezin oluşumu bilimsel ve hukuksal boyutu ile etik ilkeler vurgusu yapılmaktadır.

Dayanaklar/Kaynaklar: Başlıca Wikipedia ansiklopedisinden genel bilgiler alınmış, diğer Hukuksal ve Etik bilgiler de Neonatoloji Kongre sunumlarından faydalanılarak hazırlanmıştır. Genel Yaklaşım; Birey yaşam hakkı temel unsurdur, bu gebelikte başlayan boyuttur. !0 Gebelik Haftasına kadar anne ve bebek hakkı bütünleşmiş iken, daha sonra bebeğin hakkı ayrılmakta ve yaşama hakkı tanınmalıdır. Tüm Hukuksal boyut Neonatoloji temelinde yapılandırılmış ve merkezleşmenin gerekliliği vurgulanmıştır.

Sonuç: Gebelik (Perinatoloji Bilim Dalı) ve doğum ile ilk 28 gün (Neonatoloji Bilim Dalı) çerçevesinde ele alınan, prematüreleri ise aylarca Yoğun Bakımda izlem gerekmesi ile bir varlığın oluşturulduğu üniteler olmaktadırlar. Bilimsel ve teknolojik yapılanmanın en önemli katkı sağladığı Bilim Dalları olarak, eğitim, beceri kazanma ve tüm hekimlere neonatal canlandırmayı aktif uygulayabilme becerisini kazandırma gibi yaklaşım da söz konusudur.

Yorum: İnsan gebelik ve doğum ile varlığını oluşturduğuna göre, mortalite ve morbidite de bu dönemde en yüksek olması ve teknolojik ilerlemenin ve gelişimin simgesi olan Neonatal Yoğun Bakımların merkezleşmesinin anlamı belirtilmektedir.

Anahtar Kelimeler: Neonatal Bilim Dalı ve Yoğun Bakımların merkezileşmesi

Outline

Major centralization is important at Neonatology Discipline

AIM: Health Organizations are regulated and constructed under Ministry of Health, so, the rights of fetus and babies, are considered under Declarations of ethics ane administrative legal aspects, thus indicated at this Article. After the Second World War, the Human Rights for Neonatology feature as under the Human Right to Live, becoming as scientific centralization, education and facility under technology, for efficient and effectivity process. At this Article the reasoning or being centralization of Neonatology under the Legal ane Ethical Concepts are evaluated.

Grounding Aspects: Mainly on Wikipedia Encyclopedia at general subjects, as ethical and legal factors taken form Neonatology Congress presented by author.
Introduction: Right to Live, as basic Human Right, from pregnancy to infancy, thus, under 10 Gestational Week, mother and infant rights united, can ve terminated, but after 10 Gestational Week, fetus has unique right to live, so not legally allowed. From this aspect the centralization of Neonatology in Medicine and essentialization is noted at this Article.
Notions: Perinatology (Pregnancy Scientific Division) and labor with 28 days following (Neonatology Scientific Division) in consideration, months of serve and care of preterm infants in Intensive Care Unit, as also giving certification and gaining neonatal resuscitation practice, as routine education.
Conclusion: As all Human being, established by pregnancy and labor, and mortality and morbidity ratio are the highest at this stage, as a symbol of progress in science and technology, the scientific centralization of Neonatology is an obviously confirmed.
Key Words: Centralization of Neonatology and Intensive Care Unit

Giriş

Neonatoloji Devresinde önemi açısından konuyu irdelemek için öncelikle Tıp Bilimi, Sağlık gibi konular incelenmeli ve yenidoğan evresinin önemi ortaya konularak, algılanmalıdır.

İnsanların var oluşu, tek hücreden bir insan olması süreci olan gebelik yadsınamaz. Bunun öncesi anne ve babanın bebek sahibi olma isteği, bunun bir varlık devamı ve insanlık boyutunu sürmesi için gerekliliğini algılamaları oluşmadan olmayacağı açıktır. Tüm bunların oluşmasını sağlayan sevgi ve fedakârlık temelinde olan sevgi, olmaz ise olmaz boyutundadır. Yenidoğan Dönemindeki her boyut, bir insanlık algısı ve tanımı içindedir. Emzirme başlı başına tüm bunları kapsayan bir olgudur.

Hekimlik ve Sağlık Algısında Neonatoloji 'nin Yeri

Neonatoloji Bilim Dalı en son oluşan uzmanlık konusu olması, her hekimin yenidoğan evresinde eğitim gördüğü ve Pediatri Uzmanlık döneminde de uzun bir asistanlık, kıdemlilik yapması ile eğitildiği bir daldır.

Peki niye ayrıca uzmanlık boyutuna gelmesi söz konusu olunca, mortalite ve morbiditenin azaltılabilmesi ve prematürelerin sağlıklı olarak büyütülebilmesi aşamasında, teknolojik gelişimin aktif ve verimli kullanılması için bu uzmanlığa gereksinim olduğu belirgindir. Eskiden ebelerin doğumhanede olması ve sorun olunca yenidoğan acil müdahale ekibi çağırılırken, tüm doğum yapan ekibin canlandırma dahil, sertifikasyonu olmasının şart koşulması ve her doğumda Neonatoloji Bilim Dalından birisinin olması ile, mortalite ve morbiditede belirgin düşme gözlenmiştir. Engelli olan çocukların canlandırma boyutu, 5 dakika sonra ekibin gelmesi ile olurken, şimdi ise doğumhanede oldukları için, hemen müdahale edilebilmektedir.

Neonatal Yoğun Bakım Ünitesi yaşam sınırında olan prematüreleri yaşatabilmek için, zamanımızda en ileri teknolojik başarıyı, bilişim yapısı, suni zekâ kapasitesi ile sağlamasıyla de örnek olmaktadır.

Genel anlamda Tıp yaklaşımı ve Sağlık yaklaşımı konusunda Ansiklopedik bir bakışa bakılır ve buna göre yorum yapılması yerinde olacaktır. Yorumlar Neonatoloji çerçevesinde olması da doğal karşılanmalıdır.

Medicine, Wikipedia[1]

Medicine is the science[1] and practice[2] of caring for a patient, managing the diagnosis, prognosis, prevention, treatment, palliation of their injury or disease, and promoting their health. Medicine encompasses a variety of health care practices evolved to maintain and restore health by the prevention and treatment of illness. Contemporary medicine applies biomedical sciences, biomedical research, genetics, and medical technology to diagnose, treat, and prevent injury and disease, typically through pharmaceuticals or surgery, but also through therapies as diverse as psychotherapy, external splints and traction, medical devices, biologics, and ionizing radiation, amongst others.[3]

Medicine has been practiced since prehistoric times, and for most of this time it was an art (an area of creativity and skill), frequently having connections to the religious and philosophical beliefs of local culture. For example, a medicine man would apply herbs and say prayers for healing, or an ancient philosopher and physician would apply bloodletting according to the theories of humorism. In recent centuries, since the advent of modern science, most medicine has become a combination of art and science (both basic and applied, under the umbrella of **medical science**). For example, while stitching technique for sutures is an art learned through practice, knowledge of what happens at the cellular and molecular level in the tissues being stitched arises through science.

Prescientific forms of medicine, now known as traditional medicine or *folk medicine*, remain commonly used in the absence of scientific medicine and are thus called alternative medicine. Alternative treatments outside of scientific medicine with ethical, safety and efficacy concerns are termed quackery.

Etymology

Medicine (UK: /ˈmɛdsɪn/ ⓘ, US: /ˈmɛdɪsɪn/ ⓘ) is the science and practice of the diagnosis, prognosis, treatment, and prevention of disease.[4][5] The word "medicine" is derived from Latin *medicus*, meaning "a physician".[6][7]

Clinical practice

Medical availability and clinical practice vary across the world due to regional differences in culture and technology. Modern scientific medicine is highly developed in the Western world, while in developing countries such as parts of Africa or Asia, the population may rely more heavily on traditional medicine with limited evidence and efficacy and no required formal training for practitioners.[8]

In the developed world, evidence-based medicine is not universally used in clinical practice; for example, a 2007 survey of literature reviews found that about 49% of the interventions lacked sufficient evidence to support either benefit or harm.[9]

In modern clinical practice, physicians and physician assistants personally assess patients to diagnose, prognose, treat, and prevent disease using clinical judgment. The doctor-patient relationship typically begins with an interaction with an examination of the patient's medical history and medical record, followed by a medical interview[10] and a physical examination. Basic diagnostic medical devices (e.g., stethoscope, tongue depressor) are typically used. After examining for signs and interviewing for symptoms, the doctor may order medical tests (e.g., blood tests), take a biopsy, or prescribe pharmaceutical drugs or other therapies. Differential diagnosis methods help to rule out conditions based on the information provided. During the encounter, properly informing the patient of all relevant facts is an important part of the relationship and the development of trust. The medical encounter is then documented in the medical record, which is a legal document in many jurisdictions.[11] Follow-ups may be shorter but follow the same general procedure, and specialists follow a similar process. The diagnosis and treatment may take only a few minutes or a few weeks, depending on the complexity of the issue.

The components of the medical interview[10] and encounter are:

- Chief complaint (CC): the reason for the current medical visit. These are the *symptoms*. They are in the patient's own words and are recorded along with the duration of each one. Also called *chief concern* or *presenting complaint*.
- Current activity: occupation, hobbies, what the patient actually does.
- Family history (FH): listing of diseases in the family that may impact the patient. A family tree is sometimes used.
- History of present illness (HPI): the chronological order of events of symptoms and further clarification of each symptom. Distinguishable from history of previous illness, often called past medical history (PMH). Medical history comprises HPI and PMH.
- Medications (Rx): what drugs the patient takes including prescribed, over-the-counter, and home remedies, as well as alternative and herbal medicines or remedies. Allergies are also recorded.
- Past medical history (PMH/PMHx): concurrent medical problems, past hospitalizations and operations, injuries, past infectious diseases or vaccinations, history of known allergies.
- Review of systems (ROS) or *systems inquiry*: a set of additional questions to ask, which may be missed on HPI: a general enquiry (have you noticed any weight loss, change in sleep quality, fevers, lumps and bumps? etc.), followed by questions on the body's main organ systems (heart, lungs, digestive tract, urinary tract, etc.).
- Social history (SH): birthplace, residences, marital history, social and economic status, habits (including diet, medications, tobacco, alcohol).

The physical examination is the examination of the patient for medical signs of disease that are objective and observable, in contrast to symptoms that are volunteered by the patient and are not necessarily objectively observable.[12] The healthcare provider uses sight, hearing, touch, and sometimes smell (e.g., in infection, uremia, diabetic ketoacidosis). Four actions are the basis of physical examination: inspection, palpation (feel), percussion (tap to determine resonance characteristics), and auscultation (listen), generally in that order, although auscultation occurs prior to percussion and palpation for abdominal assessments.[13]

The clinical examination involves the study of:[14]

- Abdomen and rectum
- Cardiovascular (heart and blood vessels)
- General appearance of the patient and specific indicators of disease (nutritional status, presence of jaundice, pallor or clubbing)
- Genitalia (and pregnancy if the patient is or could be pregnant)
- Head, eye, ear, nose, and throat (HEENT)[14]
- Musculoskeletal (including spine and extremities)
- Neurological (consciousness, awareness, brain, vision, cranial nerves, spinal cord and peripheral nerves)
- Psychiatric (orientation, mental state, mood, evidence of abnormal perception or thought).
- Respiratory (large airways and lungs)[14]
- Skin
- Vital signs including height, weight, body temperature, blood pressure, pulse, respiration rate, and hemoglobin oxygen saturation[14]

It is to likely focus on areas of interest highlighted in the medical history and may not include everything listed above.

The treatment plan may include ordering additional medical laboratory tests and medical imaging studies, starting therapy, referral to a specialist, or watchful observation. A follow-up may be advised. Depending upon the health insurance plan and the managed care system, various forms of "utilization review", such as prior authorization of tests, may place barriers on accessing expensive services.[15]

The medical decision-making (MDM) process includes the analysis and synthesis of all the above data to come up with a list of possible diagnoses (the differential diagnoses), along with an idea of what needs to be done to obtain a definitive diagnosis that would explain the patient's problem.

On subsequent visits, the process may be repeated in an abbreviated manner to obtain any new history, symptoms, physical findings, lab or imaging results, or specialist consultations.

Institutions

Contemporary medicine is, in general, conducted within health care systems. Legal, credentialing, and financing frameworks are established by individual governments, augmented on occasion by international organizations, such as churches. The characteristics of any given health care system have a significant impact on the way medical care is provided.

From ancient times, Christian emphasis on practical charity gave rise to the development of systematic nursing and hospitals, and the Catholic Church today remains the largest non-government provider of medical services in the world.[16] Advanced industrial countries (with the exception of the United States)[17][18] and many developing countries provide medical services through a system of universal health care that aims to guarantee care for all through a single-payer health care system or compulsory private or cooperative health insurance. This is intended to ensure that the entire population has access to medical care on the basis of need rather than ability to pay. Delivery may be via private medical practices, state-owned hospitals and clinics, or charities, most commonly a combination of all three.

Most tribal societies provide no guarantee of healthcare for the population as a whole. In such societies, healthcare is available to those who can afford to pay for it, have self-insured it (either directly or as part of an employment contract), or may be covered by care financed directly by the government or tribe.

Transparency of information is another factor defining a delivery system. Access to information on conditions, treatments, quality, and pricing greatly affects the choice of patients/consumers and, therefore, the incentives of medical professionals. While the US healthcare system has come under fire for its lack of openness,[19] new legislation may encourage greater openness. There is a perceived tension between the need for transparency on the one hand and such issues as patient confidentiality and the possible exploitation of information for commercial gain on the other.

The health professionals who provide care in medicine comprise multiple professions, such as medics, nurses, physiotherapists, and psychologists. These professions will have their own ethical standards, professional education, and bodies. The medical profession has been conceptualized from a sociological perspective.[20]

Delivery

Primary care medical services are provided by physicians, physician assistants, nurse practitioners, or other health professionals who have first contact with a patient seeking medical treatment or care.[22] These occur in physician offices, clinics, nursing homes, schools, home visits, and other places close to patients. About 90% of medical visits can be treated by the primary care provider. These include treatment of acute and chronic illnesses, preventive care and health education for all ages and both sexes.

Secondary care medical services are provided by medical specialists in their offices or clinics or at local community hospitals for a patient referred by a primary care provider who first diagnosed or treated the patient.[23] Referrals are made for those patients who required the expertise or procedures performed by specialists. These include both ambulatory care and inpatient services, emergency departments, intensive care medicine, surgery services, physical therapy, labor and delivery, endoscopy units, diagnostic laboratory and medical imaging services, hospice centers, etc. Some primary care providers may also take care of hospitalized patients and deliver babies in a secondary care setting.

Tertiary care medical services are provided by specialist hospitals or regional centers equipped with diagnostic and treatment facilities not generally available at local hospitals. These include trauma centers, burn treatment centers, advanced neonatology unit services, organ transplants, high-risk pregnancy, radiation oncology, etc.

Modern medical care also depends on information – still delivered in many health care settings on paper records, but increasingly nowadays by electronic means.

In low-income countries, modern healthcare is often too expensive for the average person. International healthcare policy researchers have advocated that "user fees" be removed in these areas to ensure access, although even after removal, significant costs and barriers remain.[24]

Separation of prescribing and dispensing is a practice in medicine and pharmacy in which the physician who provides a medical prescription is independent from the pharmacist who provides the prescription drug. In the

Western world there are centuries of tradition for separating pharmacists from physicians. In Asian countries, it is traditional for physicians to also provide drugs.[25]

Branches

Working together as an interdisciplinary team, many highly trained health professionals besides medical practitioners are involved in the delivery of modern health care. Examples include: nurses, emergency medical technicians and paramedics, laboratory scientists, pharmacists, podiatrists, physiotherapists, respiratory therapists, speech therapists, occupational therapists, radiographers, dietitians, and bioengineers, medical physicists, surgeons, surgeon's assistant, surgical technologist.

The scope and sciences underpinning human medicine overlap many other fields. A patient admitted to the hospital is usually under the care of a specific team based on their main presenting problem, e.g., the cardiology team, who then may interact with other specialties, e.g., surgical, radiology, to help diagnose or treat the main problem or any subsequent complications/developments.

Physicians have many specializations and subspecializations into certain branches of medicine, which are listed below. There are variations from country to country regarding which specialties certain subspecialties are in.

The main branches of medicine are:

- Basic sciences of medicine; this is what every physician is educated in, and some return to in biomedical research.
- Interdisciplinary fields, where different medical specialties are mixed to function in certain occasions.
- Medical specialties

Basic sciences

- *Anatomy* is the study of the physical structure of organisms. In contrast to *macroscopic* or *gross anatomy*, *cytology* and *histology* are concerned with microscopic structures.
- *Biochemistry* is the study of the chemistry taking place in living organisms, especially the structure and function of their chemical components.
- *Biomechanics* is the study of the structure and function of biological systems by means of the methods of Mechanics.
- *Biophysics* is an interdisciplinary science that uses the methods of physics and physical chemistry to study biological systems.
- *Biostatistics* is the application of statistics to biological fields in the broadest sense. A knowledge of biostatistics is essential in the planning, evaluation, and interpretation of medical research. It is also fundamental to epidemiology and evidence-based medicine.
- *Cytology* is the microscopic study of individual cells.
- *Embryology* is the study of the early development of organisms.
- *Endocrinology* is the study of hormones and their effect throughout the body of animals.
- *Epidemiology* is the study of the demographics of disease processes, and includes, but is not limited to, the study of epidemics.
- *Genetics* is the study of genes, and their role in biological inheritance.
- *Gynecology* is the study of female reproductive system.
- *Histology* is the study of the structures of biological tissues by light microscopy, electron microscopy and immunohistochemistry.
- *Immunology* is the study of the immune system, which includes the innate and adaptive immune system in humans, for example.
- *Lifestyle medicine* is the study of the chronic conditions, and how to prevent, treat and reverse them.
- *Medical physics* is the study of the applications of physics principles in medicine.
- *Microbiology* is the study of microorganisms, including protozoa, bacteria, fungi, and viruses.
- *Molecular biology* is the study of molecular underpinnings of the process of replication, transcription and translation of the genetic material.
- *Neuroscience* includes those disciplines of science that are related to the study of the nervous system. A main focus of neuroscience is the biology and physiology of the human brain and spinal cord. Some related clinical specialties include neurology, neurosurgery and psychiatry.

- *Nutrition science* (theoretical focus) and *dietetics* (practical focus) is the study of the relationship of food and drink to health and disease, especially in determining an optimal diet. Medical nutrition therapy is done by dietitians and is prescribed for diabetes, cardiovascular diseases, weight and eating disorders, allergies, malnutrition, and neoplastic diseases.
- *Pathology as a science* is the study of disease – the causes, course, progression and resolution thereof.
- *Pharmacology* is the study of drugs and their actions.
- *Photobiology* is the study of the interactions between non-ionizing radiation and living organisms.
- *Physiology* is the study of the normal functioning of the body and the underlying regulatory mechanisms.
- *Radiobiology* is the study of the interactions between ionizing radiation and living organisms.
- *Toxicology* is the study of hazardous effects of drugs and poisons.

Specialties

In the broadest meaning of "medicine", there are many different specialties. In the UK, most specialities have their own body or college, which has its own entrance examination. These are collectively known as the Royal Colleges, although not all currently use the term "Royal". The development of a speciality is often driven by new technology (such as the development of effective anaesthetics) or ways of working (such as emergency departments); the new specialty leads to the formation of a unifying body of doctors and the prestige of administering their own examination.

Within medical circles, specialities usually fit into one of two broad categories: "Medicine" and "Surgery". "Medicine" refers to the practice of non-operative medicine, and most of its subspecialties require preliminary training in Internal Medicine. In the UK, this was traditionally evidenced by passing the examination for the Membership of the Royal College of Physicians (MRCP) or the equivalent college in Scotland or Ireland. "Surgery" refers to the practice of operative medicine, and most subspecialties in this area require preliminary training in General Surgery, which in the UK leads to membership of the Royal College of Surgeons of England (MRCS). At present, some specialties of medicine do not fit easily into either of these categories, such as radiology, pathology, or anesthesia. Most of these have branched from one or other of the two camps above; for example anaesthesia developed first as a faculty of the Royal College of Surgeons (for which MRCS/FRCS would have been required) before becoming the Royal College of Anaesthetists and membership of the college is attained by sitting for the examination of the Fellowship of the Royal College of Anesthetists (FRCA).

Surgical specialty

Surgery is an ancient medical specialty that uses operative manual and instrumental techniques on a patient to investigate or treat a pathological condition such as disease or injury, to help improve bodily function or appearance or to repair unwanted ruptured areas (for example, a perforated ear drum). Surgeons must also manage pre-operative, post-operative, and potential surgical candidates on the hospital wards. In some centers, anesthesiology is part of the division of surgery (for historical and logistical reasons), although it is not a surgical discipline. Other medical specialties may employ surgical procedures, such as ophthalmology and dermatology, but are not considered surgical sub-specialties per se.

Surgical training in the U.S. requires a minimum of five years of residency after medical school. Sub-specialties of surgery often require seven or more years. In addition, fellowships can last an additional one to three years. Because post-residency fellowships can be competitive, many trainees devote two additional years to research. Thus, in some cases surgical training will not finish until more than a decade after medical school. Furthermore, surgical training can be very difficult and time-consuming.

Surgical subspecialties include those a physician may specialize in after undergoing general surgery residency training as well as several surgical fields with separate residency training. Surgical subspecialties that one may pursue following general surgery residency training: [26]

- Bariatric surgery
- Cardiovascular surgery – may also be pursued through a separate cardiovascular surgery residency track
- Colorectal surgery
- Endocrine surgery
- General surgery
- Hand surgery
- Hepatico-Pancreatico-Biliary Surgery
- Minimally invasive surgery
- Pediatric surgery

- Plastic surgery – may also be pursued through a separate plastic surgery residency track
- Surgical critical care
- Surgical oncology
- Transplant surgery
- Trauma surgery
- Vascular surgery – may also be pursued through a separate vascular surgery residency track

Other surgical specialties within medicine with their own individual residency training:

- Dermatology
- Neurosurgery
- Ophthalmology
- Oral and maxillofacial surgery
- Orthopedic surgery
- Otorhinolaryngology
- Podiatric surgery – do not undergo medical school training, but rather separate training in podiatry school
- Urology

Internal medicine specialty

Internal medicine is the medical specialty dealing with the prevention, diagnosis, and treatment of adult diseases.[27] According to some sources, an emphasis on internal structures is implied.[28] In North America, specialists in internal medicine are commonly called "internists". Elsewhere, especially in Commonwealth nations, such specialists are often called physicians.[29] These terms, *internist* or *physician* (in the narrow sense, common outside North America), generally exclude practitioners of gynecology and obstetrics, pathology, psychiatry, and especially surgery and its subspecialities.

Because their patients are often seriously ill or require complex investigations, internists do much of their work in hospitals. Formerly, many internists were not subspecialized; such *general physicians* would see any complex nonsurgical problem; this style of practice has become much less common. In modern urban practice, most internists are subspecialists: that is, they generally limit their medical practice to problems of one organ system or to one particular area of medical knowledge. For example, gastroenterologists and nephrologists specialize respectively in diseases of the gut and the kidneys.[30]

In the Commonwealth of Nations and some other countries, specialist pediatricians and geriatricians are also described as *specialist physicians* (or internists) who have subspecialized by age of patient rather than by organ system. Elsewhere, especially in North America, general pediatrics is often a form of primary care.

There are many subspecialities (or subdisciplines) of internal medicine:

- *Angiology/Vascular Medicine*
- *Bariatrics*
- *Cardiology*
- *Critical care medicine*
- *Endocrinology*
- *Gastroenterology*
- *Geriatrics*
- *Hematology*
- *Hepatology*
- *Infectious disease*
- *Nephrology*
- *Neurology*
- *Oncology*
- *Pediatrics*
- *Pulmonology/Pneumology/Respirology/chest medicine*
- *Rheumatology*
- *Sports Medicine*

Training in internal medicine (as opposed to surgical training), varies considerably across the world: see the articles on *medical education* for more details. In North America, it requires at least three years of residency training after medical school, which can then be followed by a one- to three-year fellowship in the subspecialties listed above. In general, resident work hours in medicine are less than those in surgery, averaging about 60 hours per week in the US. This difference does not apply in the UK where all doctors are now required by law to work less than 48 hours per week on average.

Diagnostic specialties

- *Clinical laboratory sciences* are the clinical diagnostic services that apply laboratory techniques to diagnosis and management of patients. In the United States, these services are supervised by a pathologist. The personnel that work in these medical laboratory departments are technically trained staff who do not hold medical degrees, but who usually hold an undergraduate medical technology degree, who actually perform the tests, assays, and procedures needed for providing the specific services. Subspecialties include transfusion medicine, cellular pathology, clinical chemistry, hematology, clinical microbiology and clinical immunology.

- *Clinical neurophysiology* is concerned with testing the physiology or function of the central and peripheral aspects of the nervous system. These kinds of tests can be divided into recordings of: (1) spontaneous or continuously running electrical activity, or (2) stimulus evoked responses. Subspecialties include electroencephalography, electromyography, evoked potential, nerve conduction study and polysomnography. Sometimes these tests are performed by techs without a medical degree, but the interpretation of these tests is done by a medical professional.
- *Diagnostic radiology* is concerned with imaging of the body, e.g. by x-rays, x-ray computed tomography, ultrasonography, and nuclear magnetic resonance tomography. Interventional radiologists can access areas in the body under imaging for an intervention or diagnostic sampling.
- *Nuclear medicine* is concerned with studying human organ systems by administering radiolabelled substances (radiopharmaceuticals) to the body, which can then be imaged outside the body by a gamma camera or a PET scanner. Each radiopharmaceutical consists of two parts: a tracer that is specific for the function under study (e.g., neurotransmitter pathway, metabolic pathway, blood flow, or other), and a radionuclide (usually either a gamma-emitter or a positron emitter). There is a degree of overlap between nuclear medicine and radiology, as evidenced by the emergence of combined devices such as the PET/CT scanner.
- *Pathology as a medical specialty* is the branch of medicine that deals with the study of diseases and the morphologic, physiologic changes produced by them. As a diagnostic specialty, pathology can be considered the basis of modern scientific medical knowledge and plays a large role in evidence-based medicine. Many modern molecular tests such as flow cytometry, polymerase chain reaction (PCR), immunohistochemistry, cytogenetics, gene rearrangements studies and fluorescent in situ hybridization (FISH) fall within the territory of pathology.

Other major specialties

The following are some major medical specialties that do not directly fit into any of the above-mentioned groups:

- *Anesthesiology* (also known as *anaesthetics*): concerned with the perioperative management of the surgical patient. The anesthesiologist's role during surgery is to prevent derangement in the vital organs' (i.e. brain, heart, kidneys) functions and postoperative pain. Outside of the operating room, the anesthesiology physician also serves the same function in the labor and delivery ward, and some are specialized in critical medicine.
- *Emergency medicine* is concerned with the diagnosis and treatment of acute or life-threatening conditions, including trauma, surgical, medical, pediatric, and psychiatric emergencies.
- *Family medicine*, *family practice*, *general practice* or *primary care* is, in many countries, the first port-of-call for patients with non-emergency medical problems. Family physicians often provide services across a broad range of settings including office-based practices, emergency department coverage, inpatient care, and nursing home care.
- *Medical genetics* is concerned with the diagnosis and management of hereditary disorders.
- *Neurology* is concerned with diseases of the nervous system. In the UK, neurology is a subspecialty of general medicine.
- *Obstetrics and gynecology* (often abbreviated as *OB/GYN* (American English) or *Obs & Gynae* (British English)) are concerned respectively with childbirth and the female reproductive and associated organs. Reproductive medicine and fertility medicine are generally practiced by gynecological specialists.
- *Pediatrics* (AE) or *paediatrics* (BE) is devoted to the care of infants, children, and adolescents. Like internal medicine, there are many pediatric subspecialties for specific age ranges, organ systems, disease classes, and sites of care delivery.
- *Pharmaceutical medicine* is the medical scientific discipline concerned with the discovery, development, evaluation, registration, monitoring and medical aspects of marketing of medicines for the benefit of patients and public health.
- *Physical medicine and rehabilitation* (or *physiatry*) are concerned with functional improvement after injury, illness, or congenital disorders.

- *Podiatric medicine* is the study of, diagnosis, and medical & surgical treatment of disorders of the foot, ankle, lower limb, hip and lower back.
- *Preventive medicine* is the branch of medicine concerned with preventing disease.
    - *Community health* or *public health* is an aspect of health services concerned with threats to the overall health of a community based on population health analysis.
- *Psychiatry* is the branch of medicine concerned with the bio-psycho-social study of the etiology, diagnosis, treatment and prevention of cognitive, perceptual, emotional and behavioral disorders. Related fields include psychotherapy and clinical psychology.

Interdisciplinary fields

Some interdisciplinary sub-specialties of medicine include:

- *Addiction medicine* deals with the treatment of addiction.
- *Aerospace medicine* deals with medical problems related to flying and space travel.
- *Biomedical Engineering* is a field dealing with the application of engineering principles to medical practice.
- *Clinical pharmacology* is concerned with how systems of therapeutics interact with patients.
- *Conservation medicine* studies the relationship between human and non-human animal health, and environmental conditions. Also known as ecological medicine, environmental medicine, or medical geology.
- *Disaster medicine* deals with medical aspects of emergency preparedness, disaster mitigation and management.
- *Diving medicine* (or hyperbaric medicine) is the prevention and treatment of diving-related problems.
- *Evolutionary medicine* is a perspective on medicine derived through applying evolutionary theory.
- *Forensic medicine* deals with medical questions in legal context, such as determination of the time and cause of death, type of weapon used to inflict trauma, reconstruction of the facial features using remains of deceased (skull) thus aiding identification.
- *Gender-based medicine* studies the biological and physiological differences between the human sexes and how that affects differences in disease.
- *Health informatics* is a relatively recent field that deal with the application of computers and information technology to medicine.
- *Hospice and Palliative Medicine* is a relatively modern branch of clinical medicine that deals with pain and symptom relief and emotional support in patients with terminal illnesses including cancer and heart failure.
- *Hospital medicine* is the general medical care of hospitalized patients. Physicians whose primary professional focus is hospital medicine are called hospitalists in the United States and Canada. The term Most Responsible Physician (MRP) or attending physician is also used interchangeably to describe this role.
- *Laser medicine* involves the use of lasers in the diagnostics or treatment of various conditions.
- Many other health science fields, e.g. dietetics
- *Medical ethics* deals with ethical and moral principles that apply values and judgments to the practice of medicine.
- *Medical humanities* includes the humanities (literature, philosophy, ethics, history and religion), social science (anthropology, cultural studies, psychology, sociology), and the arts (literature, theater, film, and visual arts) and their application to medical education and practice.
- *Nosokinetics* is the science/subject of measuring and modelling the process of care in health and social care systems.
- *Nosology* is the classification of diseases for various purposes.
- *Occupational medicine* is the provision of health advice to organizations and individuals to ensure that the highest standards of health and safety at work can be achieved and maintained.
- *Pain management* (also called *pain medicine*, or *algiatry*) is the medical discipline concerned with the relief of pain.
- *Pharmacogenomics* is a form of *individualized medicine*.

- *Podiatric medicine* is the study of, diagnosis, and medical treatment of disorders of the foot, ankle, lower limb, hip and lower back.
- *Sexual medicine* is concerned with diagnosing, assessing and treating all disorders related to sexuality.
- *Sports medicine* deals with the treatment and prevention and rehabilitation of sports/exercise injuries such as muscle spasms, muscle tears, injuries to ligaments (ligament tears or ruptures) and their repair in athletes, amateur and professional.
- *Therapeutics* is the field, more commonly referenced in earlier periods of history, of the various remedies that can be used to treat disease and promote health.[31]
- *Travel medicine* or *emporiatrics* deals with health problems of international travelers or travelers across highly different environments.
- *Tropical medicine* deals with the prevention and treatment of tropical diseases. It is studied separately in temperate climates where those diseases are quite unfamiliar to medical practitioners and their local clinical needs.
- *Urgent care* focuses on delivery of unscheduled, walk-in care outside of the hospital emergency department for injuries and illnesses that are not severe enough to require care in an emergency department. In some jurisdictions this function is combined with the emergency department.
- Veterinary medicine; veterinarians apply similar techniques as physicians to the care of non-human animals.
- *Wilderness medicine* entails the practice of medicine in the wild, where conventional medical facilities may not be available.

Education and legal controls

Medical education and training vary around the world. It typically involves entry level education at a university medical school, followed by a period of supervised practice or internship, or residency. This can be followed by postgraduate vocational training. A variety of teaching methods have been employed in medical education, still itself a focus of active research. In Canada and the United States of America, a Doctor of Medicine degree, often abbreviated M.D., or a Doctor of Osteopathic Medicine degree, often abbreviated as D.O. and unique to the United States, must be completed in and delivered from a recognized university.

Since knowledge, techniques, and medical technology continue to evolve at a rapid rate, many regulatory authorities require continuing medical education. Medical practitioners upgrade their knowledge in various ways, including medical journals, seminars, conferences, and online programs. A database of objectives covering medical knowledge, as suggested by national societies across the United States, can be searched at http://data.medobjectives.marian.edu/ Archived 4 October 2018 at the Wayback Machine.[32]

In most countries, it is a legal requirement for a medical doctor to be licensed or registered. In general, this entails a medical degree from a university and accreditation by a medical board or an equivalent national organization, which may ask the applicant to pass exams. This restricts the considerable legal authority of the medical profession to physicians that are trained and qualified by national standards. It is also intended as an assurance to patients and as a safeguard against charlatans that practice inadequate medicine for personal gain. While the laws generally require medical doctors to be trained in "evidence based", Western, or Hippocratic Medicine, they are not intended to discourage different paradigms of health.

In the European Union, the profession of doctor of medicine is regulated. A profession is said to be regulated when access and exercise is subject to the possession of a specific professional qualification. The regulated professions database contains a list of regulated professions for doctor of medicine in the EU member states, EEA countries and Switzerland. This list is covered by the Directive 2005/36/EC.

Doctors who are negligent or intentionally harmful in their care of patients can face charges of medical malpractice and be subject to civil, criminal, or professional sanctions.

Medical ethics

Medical ethics is a system of moral principles that apply values and judgments to the practice of medicine. As a scholarly discipline, medical ethics encompasses its practical application in clinical settings as well as work on its history, philosophy, theology, and sociology. Six of the values that commonly apply to medical ethics discussions are:

- autonomy – the patient has the right to refuse or choose their treatment. (Latin: *Voluntas aegroti suprema lex*.)
- beneficence – a practitioner should act in the best interest of the patient. (Latin: *Salus aegroti suprema lex*.)
- justice – concerns the distribution of scarce health resources, and the decision of who gets what treatment (fairness and equality).
- non-maleficence – "first, do no harm" (Latin: *primum non-nocere*).
- respect for persons – the patient (and the person treating the patient) have the right to be treated with dignity.
- truthfulness and honesty – the concept of informed consent has increased in importance since the historical events of the Doctors' Trial of the Nuremberg trials, Tuskegee syphilis experiment, and others.

Values such as these do not give answers as to how to handle a particular situation, but provide a useful framework for understanding conflicts. When moral values are in conflict, the result may be an ethical dilemma or crisis. Sometimes, no good solution to a dilemma in medical ethics exists, and occasionally, the values of the medical community (i.e., the hospital and its staff) conflict with the values of the individual patient, family, or larger non-medical community. Conflicts can also arise between health care providers, or among family members. For example, some argue that the principles of autonomy and beneficence clash when patients refuse blood transfusions, considering them life-saving; and truth-telling was not emphasized to a large extent before the HIV era.

History

Ancient world

Prehistoric medicine incorporated plants (herbalism), animal parts, and minerals. In many cases these materials were used ritually as magical substances by priests, shamans, or medicine men. Well-known spiritual systems include animism (the notion of inanimate objects having spirits), spiritualism (an appeal to gods or communion with ancestor spirits); shamanism (the vesting of an individual with mystic powers); and divination (magically obtaining the truth). The field of medical anthropology examines the ways in which culture and society are organized around or impacted by issues of health, health care and related issues.

The earliest known medical texts in the world were found in the ancient Syrian city of Ebla and date back to 2500 BCE.[33][34][35] Other early records on medicine have been discovered from ancient Egyptian medicine, Babylonian Medicine, Ayurvedic medicine (in the Indian subcontinent), classical Chinese medicine (predecessor to the modern traditional Chinese medicine), and ancient Greek medicine and Roman medicine.

In Egypt, Imhotep (3rd millennium BCE) is the first physician in history known by name. The oldest Egyptian medical text is the *Kahun Gynaecological Papyrus* from around 2000 BCE, which describes gynaecological diseases. The *Edwin Smith Papyrus* dating back to 1600 BCE is an early work on surgery, while the *Ebers Papyrus* dating back to 1500 BCE is akin to a textbook on medicine.[36]

In China, archaeological evidence of medicine in Chinese dates back to the Bronze Age Shang Dynasty, based on seeds for herbalism and tools presumed to have been used for surgery.[37] The *Huangdi Neijing*, the progenitor of Chinese medicine, is a medical text written beginning in the 2nd century BCE and compiled in the 3rd century.[38]

In India, the surgeon Sushruta described numerous surgical operations, including the earliest forms of plastic surgery.[39][*dubious – discuss*][40] Earliest records of dedicated hospitals come from Mihintale in Sri Lanka where evidence of dedicated medicinal treatment facilities for patients are found.[41][42]

In Greece, the ancient Greek physician Hippocrates, the "father of modern medicine",[43][44] laid the foundation for a rational approach to medicine. Hippocrates introduced the Hippocratic Oath for physicians, which is still relevant and in use today, and was the first to categorize illnesses as acute, chronic, endemic and epidemic, and use terms such as, "exacerbation, relapse, resolution, crisis, paroxysm, peak, and convalescence".[45][46] The Greek physician Galen was also one of the greatest surgeons of the ancient world and performed many audacious operations, including brain and eye surgeries. After the fall of the Western Roman Empire and the onset of the Early Middle Ages, the Greek tradition of medicine went into decline in Western Europe, although it continued uninterrupted in the Eastern Roman (Byzantine) Empire.

Most of our knowledge of ancient Hebrew medicine during the 1st millennium BC comes from the Torah, i.e. the Five Books of Moses, which contain various health related laws and rituals. The Hebrew contribution to the development of modern medicine started in the Byzantine Era, with the physician Asaph the Jew.[47]

Middle Ages

The concept of hospital as institution to offer medical care and possibility of a cure for the patients due to the ideals of Christian charity, rather than just merely a place to die, appeared in the Byzantine Empire.[48]

Although the concept of uroscopy was known to Galen, he did not see the importance of using it to localize the disease. It was under the Byzantines with physicians such of Theophilus Protospatharius that they realized the potential in uroscopy to determine disease in a time when no microscope or stethoscope existed. That practice eventually spread to the rest of Europe.[49]

After 750 CE, the Muslim world had the works of Hippocrates, Galen and Sushruta translated into Arabic, and Islamic physicians engaged in some significant medical research. Notable Islamic medical pioneers include the Persian polymath, Avicenna, who, along with Imhotep and Hippocrates, has also been called the "father of medicine".[50] He wrote *The Canon of Medicine* which became a standard medical text at many medieval European universities,[51] considered one of the most famous books in the history of medicine.[52] Others include Abulcasis,[53] Avenzoar,[54] Ibn al-Nafis,[55] and Averroes.[56] Persian physician Rhazes[57] was one of the first to question the Greek theory of humorism, which nevertheless remained influential in both medieval Western and medieval Islamic medicine.[58] Some volumes of Rhazes's work *Al-Mansuri*, namely "On Surgery" and "A General Book on Therapy", became part of the medical curriculum in European universities.[59] Additionally, he has been described as a doctor's doctor,[60] the father of pediatrics,[57][61] and a pioneer of ophthalmology. For example, he was the first to recognize the reaction of the eye's pupil to light.[61] The Persian Bimaristan hospitals were an early example of public hospitals.[62][63]

In Europe, Charlemagne decreed that a hospital should be attached to each cathedral and monastery and the historian Geoffrey Blainey likened the activities of the Catholic Church in health care during the Middle Ages to an early version of a welfare state: "It conducted hospitals for the old and orphanages for the young; hospices for the sick of all ages; places for the lepers; and hostels or inns where pilgrims could buy a cheap bed and meal". It supplied food to the population during famine and distributed food to the poor. This welfare system the church funded through collecting taxes on a large scale and possessing large farmlands and estates. The Benedictine order was noted for setting up hospitals and infirmaries in their monasteries, growing medical herbs and becoming the chief medical care givers of their districts, as at the great Abbey of Cluny. The Church also established a network of cathedral schools and universities where medicine was studied. The Schola Medica Salernitana in Salerno, looking to the learning of Greek and Arab physicians, grew to be the finest medical school in Medieval Europe.[64]

However, the fourteenth and fifteenth century Black Death devastated both the Middle East and Europe, and it has even been argued that Western Europe was generally more effective in recovering from the pandemic than the Middle East.[65] In the early modern period, important early figures in medicine and anatomy emerged in Europe, including Gabriele Falloppio and William Harvey.

The major shift in medical thinking was the gradual rejection, especially during the Black Death in the 14th and 15th centuries, of what may be called the "traditional authority" approach to science and medicine. This was the notion that because some prominent person in the past said something must be so, then that was the way it was, and anything one observed to the contrary was an anomaly (which was paralleled by a similar shift in European society in general – see Copernicus's rejection of Ptolemy's theories on astronomy). Physicians like Vesalius improved upon or disproved some of the theories from the past. The main tomes used both by medicine students and expert physicians were Materia Medica and Pharmacopoeia.

Andreas Vesalius was the author of *De humani corporis fabrica*, an important book on human anatomy.[66] Bacteria and microorganisms were first observed with a microscope by Antonie van Leeuwenhoek in 1676, initiating the scientific field microbiology.[67] Independently from Ibn al-Nafis, Michael Servetus rediscovered the pulmonary circulation, but this discovery did not reach the public because it was written down for the first time in the "Manuscript of Paris"[68] in 1546, and later published in the theological work for which he paid with his life in 1553. Later this was described by Renaldus Columbus and Andrea Cesalpino. Herman Boerhaave is sometimes referred to as a "father of physiology" due to his exemplary

teaching in Leiden and textbook 'Institutiones medicae' (1708). Pierre Fauchard has been called "the father of modern dentistry".[69]

Modern

Veterinary medicine was, for the first time, truly separated from human medicine in 1761, when the French veterinarian Claude Bourgelat founded the world's first veterinary school in Lyon, France. Before this, medical doctors treated both humans and other animals.

Modern scientific biomedical research (where results are testable and reproducible) began to replace early Western traditions based on herbalism, the Greek "four humours" and other such pre-modern notions. The modern era really began with Edward Jenner's discovery of the smallpox vaccine at the end of the 18th century (inspired by the method of variolation originated in ancient China),[70] Robert Koch's discoveries around 1880 of the transmission of disease by bacteria, and then the discovery of antibiotics around 1900.

The post-18th century modernity period brought more groundbreaking researchers from Europe. From Germany and Austria, doctors Rudolf Virchow, Wilhelm Conrad Röntgen, Karl Landsteiner and Otto Loewi made notable contributions. In the United Kingdom, Alexander Fleming, Joseph Lister, Francis Crick and Florence Nightingale are considered important. Spanish doctor Santiago Ramón y Cajal is considered the father of modern neuroscience.

From New Zealand and Australia came Maurice Wilkins, Howard Florey, and Frank Macfarlane Burnet.

Others that did significant work include William Williams Keen, William Coley, James D. Watson (United States); Salvador Luria (Italy); Alexandre Yersin (Switzerland); Kitasato Shibasaburō (Japan); Jean-Martin Charcot, Claude Bernard, Paul Broca (France); Adolfo Lutz (Brazil); Nikolai Korotkov (Russia); Sir William Osler (Canada); and Harvey Cushing (United States).

As science and technology developed, medicine became more reliant upon medications. Throughout history and in Europe right until the late 18th century, not only plant products were used as medicine, but also animal (including human) body parts and fluids.[71] Pharmacology developed in part from herbalism and some drugs are still derived from plants (atropine, ephedrine, warfarin, aspirin, digoxin, *vinca* alkaloids,[72] taxol, hyoscine, etc.).[73] Vaccines were discovered by Edward Jenner and Louis Pasteur.

The first antibiotic was arsphenamine (Salvarsan) discovered by Paul Ehrlich in 1908 after he observed that bacteria took up toxic dyes that human cells did not. The first major class of antibiotics was the sulfa drugs, derived by German chemists originally from azo dyes.

Pharmacology has become increasingly sophisticated; modern biotechnology allows drugs targeted towards specific physiological processes to be developed, sometimes designed for compatibility with the body to reduce side-effects. Genomics and knowledge of human genetics and human evolution is having increasingly significant influence on medicine, as the causative genes of most monogenic genetic disorders have now been identified, and the development of techniques in molecular biology, evolution, and genetics are influencing medical technology, practice and decision-making.

Evidence-based medicine is a contemporary movement to establish the most effective algorithms of practice (ways of doing things) through the use of systematic reviews and meta-analysis. The movement is facilitated by modern global information science, which allows as much of the available evidence as possible to be collected and analyzed according to standard protocols that are then disseminated to healthcare providers. The Cochrane Collaboration leads this movement. A 2001 review of 160 Cochrane systematic reviews revealed that, according to two readers, 21.3% of the reviews concluded insufficient evidence, 20% concluded evidence of no effect, and 22.5% concluded positive effect.[74]

Quality, efficiency, and access

Evidence-based medicine, prevention of medical error (and other "iatrogenesis"), and avoidance of unnecessary health care are a priority in modern medical systems. These topics generate significant political and public policy attention, particularly in the United States where healthcare is regarded as excessively costly but population health metrics lag similar nations.[75]

Globally, many developing countries lack access to care and access to medicines.[76] As of 2015, most wealthy developed countries provide health care to all citizens, with a few exceptions such as the United States where lack of health insurance coverage may limit access.[77]

Yorum

Hekimlik Mesleği hem bilimsel boyutu hem de uygulama ile birlikte olmalıdır. Temel olan insan olduğu için, yaklaşımların etik boyut kadar, birey hakkı/rızası ve sorumluluk paylaşımını da gerekli kılmaktadır.

Hekimlik, tanı koymak, prognoza bilimsel bakmak, korunma ve hizmet ile, tedavi boyutu, tedavi olmasa bile ağrı ve sızıların giderilmesi, kazalarda sağlığın temini ve yaklaşımları, sağlıklı olmayı temin etmelidir.

Bunların yanında insan sağlığı olduğu için, bunun oluşması, korunması, tedavisi ve yaşamsal boyut olarak desteklenmesi uygulamaları da gündeme gelmektedir.

Sağlık boyutuna destek sağlayan, biyomedikal bilimler, genetik, araştırmalar, tıbbi teknoloji gelişimi, tanı gelişmeleri, teknolojinin uygulanması, tedavi ve tanı ötesinde erken tanı yaklaşımlarındaki gelişmeler de sayılmalıdır.

Tedavide ilaç ve uygulamalardaki gelişmeler, cerrahi yaklaşımlarda teknolojik yaklaşım ve derhal patolojik tanı koyma imkanlarının sağlanması ile ameliyata devamda karar geliştirmek, önemli yer tutmaktadır.

İnsan olduğu için, psiko-tedavi, ayrıca tıbbi cihazların uygulanması, bedenin desteği için bazı yaklaşımlar da eklenmelidir.

Buradan da anlaşılacağı gibi olay bir bütünsel boyuttur, birinin ipini çekmek ile tümü etkilenmekte, sarsılmaktadır.

Hekimlik mesleği insanın var oluşu ile tanımlanabilir. Bir yeriniz ağrıdığı, çarptığı zaman onu öpmeniz ile oluşan endojen hormonlar nedeni ile geçmesi de bir tıbbi yaklaşımdır.

Tarihte bazı ilaçlar olmadığı için, bitkilerden elde edilenler kullanılmıştır. Aspirin söğüt dalından elde edilir, ama birlikte çoklu maddelerde vardır, Eskiden önerilir iken şimdi hiç değinilmemektedir.

Plasebo gönüllü çalışmalarında kontrol olarak verilen maddelerdir. Bunlar eğer endojen mutluluk hormonları salınırsa özellikle ağrı kesilmesinde faydası vardır. Tam tedavi yerine geçmediği gibi, bunu demek bile suçtur.

Alternatif tedavi tıbbi uygun olanlar arasında tercihtir. Apandisit kapalı veya açık yapılabilir. Kapalı olan cihaz ile göbekten girip yapma tekniği iken, patlamış apandisit için söz konusu edilemez. Bilimsel boyut olmadan önce kullanılan tekniklerdendir.

Kan alma, hacamat ise eski metotlar olup, anlamı olmayan yaklaşımlardır, para kazanma hevesinde olanlar için bir suç unsuru da olabilir. Bir hematom boşaltma ve diğer gerektiğinde cerrahi yaklaşımlar bu şekilde, geleneksel ile karıştırılmamalıdır.

Dünyaya gelmemiz doğum ile oluyorsa, sorunda da sezaryen ile alınıyor ve canlı yaşatılmak amacı ile girişimler yapılıyorsa, insanlığın temeli doğuma bağlanmalıdır. Doğum yoksa, insanlık ta oluşamaz. Kısaca iki çocuk, aynı nüfusun devamlılığı olurken, üçüncüsü, nüfus artışı anlamındadır. Kısaca toplumlar varlıklarını sürdürmeyi, birey olarak ele aldığında politik bir boyutta da girmektedir. Kısaca gebelik ve doğum ile Yenidoğan Dönemi sağlıklı geçirmek demek, sağlıklı insan, sağlıklı nesil, eğitim ile de geleceğin teminatı olmaktadırlar.

Özet: Bilim dışı olan, kısaca yapılan çalışmalar ile etkisi ve faydası olmadığı, A ve B grubunda olmayan sonuçlara göre yaklaşımlar her zaman bir tıbbi hata/Malpraktis nedeni ile suçlamaya açıktır.

Medicine Etimoloji: Tıp, Medikal, kaynak olarak hekimden oluştuğu, Latin kaynaklarından öğrenilmektedir.

Hekimlik, bölgesel, kültürel yaklaşımlara göre farklılıklar gösterebilmektedir.

- Göçebe Kültüründe, sağlam olan işe yarayacağı için, özürlüler bile aktif yaşamdan çıkarılmalıdırlar.
- Tarım Kültüründe, belirli kalıpta olmalı, hekim bir edici boyutta olmalıdır. Plasebo ve alternatif tedavi bu aşamada öne alınmaktadır. Rahatlama önemlidir.
- Endüstri Kültüründe ise hastalanmama öne çıkar, aşılama ve diğer sağlık yaklaşımları ile, sağlık anlamı olmayan ama teknolojik geliştirilmiş bazı yaklaşımların da uygulandığı görülmektedir.
- Yüksek Teknoloji kültüründe, ölüme terk etme, ötenazi ve diğer kurul kararları ile sorunlu, engelli ve yaşatılması için büyük emek sarf tedavi edilenlere gerekenlerin yapılmaması boyutudur.
- Birey Hakkı Kültürü: Hayatın ne zaman başladığı ve bittiği bilinmediğine göre, kimsenin yaşam konusunda bir sonlandırma hakkı olamaz, idam cezaları dahil, bu tür yaklaşımlar suçtur. Daha önce kamu vicdanı, toplum görüşü iken, birey hakkı denilince prematürelerin yaşatılması zorunlu olmuştur. Nasıl olsa sekelli olacak denilenler, zamanımızda toplumu yönlendiren kişiler olduğu görülmektedir.

Teknolojinin kullanımı, bu kültürel gelişmelere göre uygulandığı sosyolojik gözlendiği için, Covid hastalığı zamanında bir haftadan daha uzun süre ventilatör tedavisi yapılmadığı için bu hastalar Türkiye'ye gelmişlerdir. Sanırım bir milyon gelen hasta içinde 100 bini bu tür hostalardır. Teknoloji sadece sağlıklı olacağı anlaşılan, işe yarayacak (ne demekse), en iyi hayat standardını sunmak için verilmelidir denilmektedir.
Etik ilkeler sonlandırılabilir derken, Hukuk, İnsan Hakları Mahkemesi yapılamaz demektedir.

Kanıta dayalı tıp kavramı, tüm bilimsel boyutlarda olmaktadır. Bir tanı kanıt olmadan netlik kazanamaz. Patoloji gibi histolojik tanı, radyolojinin önüne geçmektedir. Bu cerrahi işlemi zorunlu kılmakta, bunun her zaman yerinde olmayacağı dikkate alınırsa, izlem ile yaklaşım boyutu da bir çözüm olarak görülmelidir.

Hekimlik, hasta ve hekim ilişkisinin bilim ve teknoloji ile oluşturulan iletişim ve ilişki boyutudur. Toplumun, varlığın objesi insan olduğuna göre, bunun sağlıklı olması bir hedef, bir idealdir. Öncelikle sağlıklı gebelik ve ilk zaman diliminde sağlıklı olmasının sağlanması, kısaca anne sütü ile emzirilmesi ve gerçek boyutta 2 yaşa kadar bir süre sonra hemen, hemen hastalanmadığı bir yaşamı olacaktır.
Hasta ve hekim karşılıklı olduğuna göre, aradaki kurulacak iletişim önemlidir. Bunlar farklı boyutta olabilir.
--Ben bilirim mantığı ile, söylenene uy (Göçebe, Tarım ve Endüstri kültürü temelinde) denilmektedir.
--Kamu vicdanı, ortak akıl, konsey kararı gereğince (Yüksek Teknoloji Kültürü) sen onlardan daha iyi mi bilirsin mantığıdır.

--Birey Hakkı kültüründe, bilgiyi vermek, uyarı, danışmanlık yapmak, rıza ve karar bireydedir. Birey tatmin olması zor olacağı için devamlı sorgulamak ve irdelemek ile tetkikleri de gerekirse daha ileriye taşımak gerekir.
Hekimlik yaklaşımında teknolojik boyut ötesinde kültürel farklılığın olduğu da algılanmalıdır. Yüksek Teknoloji Kültürü, teknolojik gelişim boyutunda olduğu için, ben bilirim, ben üstünüm, toplum boyutu ile karar vermekteyim der. İnsan hakkını ve rızasını hiçe saydığı algısında bile olmaz.

Tıbbi iletişim boyutu: Burada hikâye alırken dikkat edilecekleri sunmaktadır.
Neonatoloji yaklaşımında da öğretildiği gibi, sorun oluşmadan öneriler, uyarılar yapılmalıdır. Anne sütü verilmesinin sağlanması, izlenmesi, buna göre etkin, verimli olarak yapılması birçok sorunu engeller.
Temizlik, bazı yaklaşımlar öğretilmesi de dışkılama ve cilt bakımı yaklaşımı öne alınmalıdır.

Burada: Temel yakınma, işi ve aktiviteleri, aile hikayesi, şimdiki yakınmalarının geçmişi, hikayesi, gördüğü tedaviler, geçmiş tedavi boyutu ve tanıları, yaklaşımlar,
Organ sistemlerinin sorgulanması, sosyal yapısı da hastalık boyutuna eklenmelidir.
Dosyasının arşivlenmesi ile geçmiş, dosyadan kanıtlı öğrenebilecektir.

Fizik inceleme sadece sorunlu olan değil tüm bedeni kapsamalıdır: Karın, anüs, kalp ve dolaşım, hastanın genel yapısı, durumu, genital yapısı, baş, boyun, adale yapısı, nöroloji, psikiyatrik boyut, solunun ve cilt ayrıca tek, tek incelenmelidir.
Kan basıncı yanında bazı rutin laboratuvar tetkikleri de zaman içinde yapılmalıdır. Biyokimya verileri önemlidir.
Ayrıca erken tanı amacı ile ultrason yaklaşımları da sorun olmasa da gündeme gelmelidir.

Sağlık kuruluşları: Hekimlik mesleğinde hekimler dışında olan sağlık personelinin farklı temelde eğitildikleri gözlenmiştir. Özellikle hemşireler papazlar tarafından olduğu Batıda anlaşılmaktadır. Zamanımızda bunlar Tıp Fakülteleri ile koordineli olarak eğitim görmekte, hastanelerde de eğitim sırasında aktif bulunmaktadırlar.

Bakımların gruplandırılması: Hasta geldiği zaman hastanelerde ***Triyaj*** denilen yerde durumuna göre sevk zinciri kurulur.
--Primer Bakım yapılacak ise, ayaktan takip kısmına yönlendirilir
--İkincil Bakım yerinde hastalıklarla yapılanan özellikle uzmanlara iletilir, iletilirken de bir görevli olur, sedye veya araba ile taşınabilir.
--Üçüncü Düzey Bakım genellikle ambulans ile sevk edilen hastalardır. Bunlara girişte müdahale etme imkanları yaratılmalıdır.

Burada söz edilmeyen, Evde Bakım, Yaşlı Bakım, Ev ziyaretleri de olmaktadır. Bunlar belirli aralıklar ile izlenirler.
Sosyal Yardımlaşma Bakanlığı ve kurumları bunları izlemek ile yükümlüdür.
Ayrıca Aile Hekimi yapısında olup, burada Hastaneye gitmeden izlem ve hastalığının gereken ilaçlarını yazdırabilmektedir.

Hekimlik Mesleği dalları: Tıp çok çeşitli konularda olduğu için, a) Temel bilimler başta olmalı, b) Karşılıklı disiplinler arası bilimler, etik, hukuk gibi, c) Tıbbi konulardaki uzmanlıklar sayılabilir.
Bu konular teknoloji ve birey hakları çerçevesinde ve bilimler arası ilişkiler nedeniyle devamlı eklendiği görülecektir.

Sağlık eğitimi kavramı: Yaşam ve insanlık boyutu içinde, başta acil yardım ve teknikleri olmak üzere her boyutta olmalıdır. Hekim yetiştirme boyutu Tıp Fakültelerine girmeden, sosyal ve ruhsal desteklenerek sürdürülmelidir.

Etik, genel anlamda doğru nedir ve doğrusal ne yapmalıyım sorularını kapsayan bir felsefe dalıdır: Hukuk uç kavramında olsa da etik ahlak felsefesi olarak kalıplar değil, doğrusal boyutu bireyin önüne sürüp irdelemesine olanak sağlamaktadır.
Başlıca hususlar:

- Otonomi: Kişinin kendi rızası ve sorumluluğunda olmalıdır. İntihar hakkı veya bedenine zarar verme hakkı olamaz, bedeni de kendi kararı dışındadır.
- Yarar durumu: Öncelikle zarar vermemek birinci kuraldır. Yarar sonra gelen bir boyuttur. Bu makalede ayrı olarak ele alınmış, kanımızca zarar ve yarar ilintisi açık ve nettir. Yarar sağlayacak diyerek zararlı madde, plasebo verilmesi olamaz.
- Adalet, bir kamu vicdanı, ortak akıl değil, bireyin hak ettiğinin sağlanması ve verilmesidir. Adalet heykelinde kadın olması, insancıl ve sevgi boyutu ile terazi ile hakların tartılması ve kılıçta etik demektir, etkinliğin uygulanmasıdır.
- Saygı boyutu, insan olma ötesinde varlık olması, sevgi boyutunun bir objesi olarak hak etmektedir. Suç işleyene ceza verebilirsiniz ama insanlık saygısını göstermeniz gerekir.
- Doğruluk, güven, emin olunması ile bilgilendirmede bu boyutlar ile aktarım olmalıdır. Zarar verecek bir işe girişmek suçtur ve suçu amir bile olsa emreden değil yapan siz olduğunuz için ceza alırsınız. Zamanımızda bizim yasalarımıza göre ötenazi bu kapsamda suçtur.

Sıklıkla ölüm orucu dahil, kan verilmesini istenmemesi durumlarında, oral hidrasyon ve damardan serum yaklaşımları ile ölüm geciktirilebilir ve kişi daha uzun yaşayarak karar değiştirildiği gözlenmiştir. Zorla yaklaşım yapan sağlık elemanlarının ceza aldığı da bilinmektedir.

Tarihsel Bakış: Doğu, özellikle Türk yaklaşımları ile İslam etkisi ile oluşanlar pek literatürde söz edilmemektedir.
622 Medine antlaşması/Anayasası ile insanlar eşit kabul edilmiş, senin inanışın sana, benimki bana denilerek, dinde, yaşamda zorlama yoktur denilerek nokta konulmuştur. Her bir kişi eylemlerine göre mahkeme olacağı ve buna göre ceza alacağı da kesinleştirilmiştir.
Kerbela olayı ile İslam gitti, yeni din geldi denilerek yapı değiştirilmiş ama Türk boyları 622 Medine yaklaşımını esas almışlardır.
Birey öncelikli olduğu için, tüm yaklaşımlar birey üzerine ve rızası temelinde olmuştur.

Gevher Nesibe yaklaşımlarından öğrenildiğine göre, Haçlı Seferleri sırasında bir Hristiyan komutanda apse çıkmış, hekimler boşaltalım demişler ve yaraya pansuman yapmışlar. Bu sırada Papaz gelmiş, bu kabul edilemez, dinden çıkarsın diyerek, bu bacağı doğrudan kesmişler, kanama ile hasta ölmüş. İnançla öldü demişler. Bunun anlamsızlığını ve insana bu şekilde hürmet etmemelerini belirten bir mektup tercüme edilip okumuştum.

Fark, arada yazılı metinler olmadığı için, genel kapsamda kaldığından zamanımızda sadece aktarılan bireysel görüşler dışında kaynak bulmak olası olmamaktadır.

Neonatoloji kapsamında ya destanlar ve hikâyeler veya abartıların tarihte hâkim olduğu görülmektedir.

NOT: Cinsel ilişki olmadan çocuk olduğuna dair 6 mitolojik hikâye vardır. Hayvanlarda, kurbağa altı sınıfta gözlenen bu durumun, insanlardaki boyutu tartışacak değilim. Konu bunları gerçek gibi kabul edilerek, ispat için papaz, devletin ileri gelenlerinin olduğu yerde cinsel ilişkiye girilmesi ve evet bakılarak içeriye döl akmıştır denip, kadın en az 2-3 hafta gözlemde tutularak, çocuk babasından ve kral olabilir denilmesidir. 4 şahit kavramı temelde Batı yaklaşımından gelendir.

NEONATOLOJİ AÇISINDAN: Tek hücreden gelişen bir insan, bunun gebelik ve gebelik öncesi anne ve hatta babanın sağlık durumları, genetik boyutları ile tümden ele alınması ve yaklaşımlar önemlidir. Bebeğin doğumunda da yaşamını sağlamak, özellikle ufak prematürelerde bir medikal mucize denilebilir. Bunun eğitilmesi ötesinde, canla, başla, akıl ve gönül bütünleştirmesi ve sevgi boyutu ile yaklaşmak gerekir.

Yaşamın başlaması ve sonlanması net öngörü olmayacağı ve bilinmeyeceği ile sağlanmalı diyen hukuk yapısına karşın, bazı etik bildirgeler ile kaliteli yaşam, anlamsız tedavi gibi yaklaşımlar ile insanın yaşamının sonlandırılması, yaşam desteği verilmemesi, canlandırma yapılmaması, bir suç olarak nitelendirirken, bunu savcılık dava açmamalı denilerek, kamu vicdanı, ortak akıl adı altında yok sayılması bir paradoks olarak mevcuttur.

Tüm bunlara bakıldığında Yenidoğan döneminde ilk 28 haftada sağlıklı geçirenlerin, anne sürü ile emzirilenlerin hastalanmalarının minimal olması, ölüm oranlarında da belirgin düşüklük gözlenmesi nedeniyle, sağlık boyutunda en önemli aşama Neonatal Dönem olduğu açık ve nettir.

Sonuçta sağlık denilince ilk planda Yenidoğan Dönemini, gebelik ile Perinatoloji ve Neonatoloji bütünleşmesi ile oluşmalıdır. Bir toplantıda bir hekim, Neonatolog aynı zamanda Perinatologtur demiş, bende karşılıklı olarak Perinatologlarda Neonatologlardır demiştim. Bütünleşme kaçınılmazdır.

Genel Sağlık Bakışında Yenidoğan Evresinin Yeri

İnsanların sağlıklı olması yaklaşımında bir defa sorun oluşunca, bunun yaşam boyu etkileşmesi doğal bir beklentidir. Yenidoğan, hatta gebelikte oluşan orunların tüm yaşamı etkilemesi de bir gerçekliktir. Serebral Palsi, eğer doğumdaki oksijenlenme sorunundan oluştuysa, bir kişinin tüm yaşamı bozulmaktadır.
Bir kimsenin yaşamını kurtaran, tüm insanlığın yaşamını kurtarmış olmaktadır. Bu açıdan Neonatologlar İnsanlığın var oluşunu sağlayan bir Bilim Dalı elemanlarıdır.

Health, Wikipedia[2]

World Health Organization's definition

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Source: "Constitution. *World Health Organization. Retrieved 10 December 2023.*

Health has a variety of definitions, which have been used for different purposes over time. Health can be promoted by encouraging healthful activities, such as regular physical exercise and adequate sleep,[1] and by reducing or avoiding unhealthful activities or situations, such as smoking or excessive stress. Some factors affecting health are due to individual choices, such as whether to engage in a high-risk behavior, while others are due to structural causes, such as whether the society is arranged in a way that makes it easier or harder for people to get necessary healthcare services. Still, other factors are beyond both individual and group choices, such as genetic disorders.

History

The meaning of health has evolved over time. In keeping with the biomedical perspective, early definitions of health focused on the theme of the body's ability to function; health was seen as a state of normal function that could be disrupted from time to time by disease. An example of such a definition of health is: "a state characterized by anatomic, physiologic, and psychological integrity; ability to perform personally valued family, work, and community roles; ability to deal with physical, biological, psychological, and social stress".[2] Then, in 1948, in a radical departure from previous definitions, the World Health Organization (WHO) proposed a definition that aimed higher, linking health to well-being, in terms of "physical, mental, and social well-being, and not merely the absence of disease and infirmity".[3] Although this definition was welcomed by some as being innovative, it was also criticized for being vague and excessively broad and was not construed as measurable. For a long time, it was set aside as an impractical ideal, with most discussions of health returning to the practicality of the biomedical model.[4]

Just as there was a shift from viewing disease as a state to thinking of it as a process, the same shift happened in definitions of health. Again, the WHO played a leading role when it fostered the development of the health promotion movement in the 1980s. This brought in a new conception of health, not as a state, but in dynamic terms of resiliency, in other words, as "a resource for living". In 1984, WHO revised the definition of health defined it as "the extent to which an individual or group is able to realize aspirations and satisfy needs and to change or cope with the environment. Health is a resource for everyday life, not the objective of living; it is a positive concept, emphasizing social and personal resources, as well as physical capacities."[5] Thus, health referred to the ability to maintain homeostasis and recover from adverse events. Mental, intellectual, emotional and social health referred to a person's ability to handle stress, to acquire skills, to maintain relationships, all of which form resources for resiliency and independent living.[4] This opens up many possibilities for health to be taught, strengthened and learned.

Since the late 1970s, the federal Healthy People Program has been a visible component of the United States' approach to improving population health.[6] In each decade, a new version of Healthy People is issued,[7] featuring updated goals and identifying topic areas and quantifiable objectives for health improvement during the succeeding ten years, with assessment at that point of progress or lack thereof. Progress has been limited to many objectives, leading to concerns about the effectiveness of Healthy People in shaping outcomes in the context of a decentralized and uncoordinated US health system. Healthy People 2020 gives more prominence to health promotion and preventive approaches and adds a substantive focus on the importance of addressing social determinants of health. A new expanded digital interface facilitates use and dissemination rather than bulky printed books as produced in the past. The impact of these changes to Healthy People will be determined in the coming years.[8]

Systematic activities to prevent or cure health problems and promote good health in humans are undertaken by health care providers. Applications with regard to animal health are covered by the veterinary sciences. The term "healthy" is also widely used in the context of many types of non-living organizations and their impacts for the benefit of humans, such as in the sense of healthy communities, healthy cities or healthy environments. In addition to health care interventions and a person's surroundings, a number of other factors are known to influence the health status of individuals. These are referred to as the "determinants of health", which include the individual's background, lifestyle, economic status, social conditions and spirituality; Studies have shown that high levels of stress can affect human health.[9]

In the first decade of the 21st century, the conceptualization of health as an ability opened the door for self-assessments to become the main indicators to judge the performance of efforts aimed at improving human health.[10] It also created the opportunity for every person to feel healthy, even in the presence of multiple

chronic diseases or a terminal condition, and for the re-examination of determinants of health (away from the traditional approach that focuses on the reduction of the prevalence of diseases).[11]

Determinants

In general, the context in which an individual lives are of great importance for both his health status and quality of life. It is increasingly recognized that health is maintained and improved not only through the advancement and application of health science, but also through the efforts and intelligent lifestyle choices of the individual and society. According to the World Health Organization, the main determinants of health include the social and economic environment, the physical environment, and the person's individual characteristics and behaviors.[12]

More specifically, key factors that have been found to influence whether people are healthy or unhealthy include the following:[12][13][14]

- Education and literacy
- Employment/working conditions
- Income and social status
- Physical environments
- Social environments
- Social support networks
- Biology and genetics
- Culture
- Gender
- Health care services
- Healthy child development
- Personal health practices and coping skills

An increasing number of studies and reports from different organizations and contexts examine the linkages between health and different factors, including lifestyles, environments, health care organization and health policy, one specific health policy brought into many countries in recent years was the introduction of the sugar tax. Beverage taxes came into light with increasing concerns about obesity, particularly among youth. Sugar-sweetened beverages have become a target of anti-obesity initiatives with increasing evidence of their link to obesity.[15]—such as the 1974 Lalonde report from Canada;[14] the Alameda County Study in California;[16] and the series of World Health Reports of the World Health Organization, which focuses on global health issues including access to health care and improving public health outcomes, especially in developing countries.[17]

The concept of the "*health field,*" as distinct from medical care, emerged from the Lalonde report from Canada. The report identified three interdependent fields as key determinants of an individual's health. These are:[14]

- Biomedical: all aspects of health, physical and mental, developed within the human body as influenced by genetic make-up.
- Environmental: all matters related to health external to the human body and over which the individual has little or no control;
- Lifestyle: the aggregation of personal decisions (i.e., over which the individual has control) that can be said to contribute to, or cause, illness or death;

The maintenance and promotion of health is achieved through different combination of physical, mental, and social well-being—a combination sometimes referred to as the *"health triangle."*[18] The WHO's 1986 *Ottawa Charter for Health Promotion* further stated that health is not just a state, but also "a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities."[19]

Focusing more on lifestyle issues and their relationships with functional health, data from the Alameda County Study suggested that people can improve their health via exercise, enough sleep, spending time in nature, maintaining a healthy body weight, limiting alcohol use, and avoiding smoking.[20] Health and illness can co-exist, as even people with multiple chronic diseases or terminal illnesses can consider themselves healthy.[21]

If you want to learn about the health of a population, look at the air they breathe, the water they drink, and the places where they live.[22][23]

— Hippocrates, the Father of Medicine, 5th Century BC

The environment is often cited as an important factor influencing the health status of individuals. This includes characteristics of the natural environment, the built environment and the social environment. Factors such as clean water and air, adequate housing, and safe communities and roads all have been found to contribute to good health, especially to the health of infants and children.[12][24] Some studies have shown that a lack of neighborhood recreational spaces including natural environment leads to lower levels of personal satisfaction and higher levels of obesity, linked to lower overall health and well-being.[25] It has been

demonstrated that increased time spent in natural environments is associated with improved self-reported health,[26] suggesting that the positive health benefits of natural space in urban neighborhoods should be taken into account in public policy and land use.

Genetics, or inherited traits from parents, also play a role in determining the health status of individuals and populations. This can encompass both the predisposition to certain diseases and health conditions, as well as the habits and behaviors individuals develop through the lifestyle of their families. For example, genetics may play a role in the manner in which people cope with stress, either mental, emotional or physical. For example, obesity is a significant problem in the United States that contributes to poor mental health and causes stress in the lives of many people.[27] One difficulty is the issue raised by the debate over the relative strengths of genetics and other factors; interactions between genetics and environment may be of particular importance.

Potential issues

A number of health issues are common around the globe. Disease is one of the most common. According to GlobalIssues.org, approximately 36 million people die each year from non-communicable (i.e., not contagious) diseases, including cardiovascular disease, cancer, diabetes and chronic lung disease.[28]

Among communicable diseases, both viral and bacterial, AIDS/HIV, tuberculosis, and malaria are the most common, causing millions of deaths every year.[28]

Another health issue that causes death or contributes to other health problems is malnutrition, especially among children. One of the groups malnutrition affects most is young children. Approximately 7.5 million children under the age of 5 die from malnutrition, usually brought on by not having the money to find or make food.[28]

Bodily injuries are also a common health issue worldwide. These injuries, including bone fractures and burns, can reduce a person's quality of life or can cause fatalities including infections that resulted from the injury (or the severity injury in general).[28]

Lifestyle choices are contributing factors to poor health in many cases. These include smoking cigarettes, and can also include a poor diet, whether it is overeating or an overly constrictive diet. Inactivity can also contribute to health issues and also a lack of sleep, excessive alcohol consumption, and neglect of oral hygiene.[*citation needed*] There are also genetic disorders that are inherited by the person and can vary in how much they affect the person (and when they surface).[*citation needed*]

Although the majority of these health issues are preventable, a major contributor to global ill health is the fact that approximately 1 billion people lack access to health care systems.[28] Arguably, the most common and harmful health issue is that a great many people do not have access to quality remedies.[29]

Mental health

The World Health Organization describes mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".[30] Mental health is not just the absence of mental illness.[31]

Mental illness is described as 'the spectrum of cognitive, emotional, and behavioral conditions that interfere with social and emotional well-being and the lives and productivity of people. Having a mental illness can seriously impair, temporarily or permanently, the mental functioning of a person. Other terms include: 'mental health problem', 'illness', 'disorder', 'dysfunction'.[32]

Approximately twenty percent of all adults in the US are considered diagnosable with a mental disorder. Mental disorders are the leading cause of disability in the United States and Canada. Examples of these disorders include schizophrenia, ADHD, major depressive disorder, bipolar disorder, anxiety disorder, post-traumatic stress disorder and autism.[33]

Many factors contribute to mental health problems, including:[34]

- Biological factors, such as genes or brain chemistry
- Family history of mental health problems
- Life experiences, such as trauma or abuse

Maintaining

Achieving and maintaining health is an ongoing process, shaped by both the evolution of health care knowledge and practices as well as personal strategies and organized interventions for staying healthy.

Diet

An important way to maintain one's personal health is to have a healthy diet. A healthy diet includes a variety of plant-based and animal-based foods that provide nutrients to the body. Such nutrients provide the body with energy and keep it running. Nutrients help build and strengthen bones, muscles, and tendons and also regulate body processes (i.e., blood pressure). Water is essential for growth, reproduction and good health. Macronutrients are consumed in relatively large quantities and include proteins, carbohydrates, and fats and fatty acids. Micronutrients – vitamins and minerals – are consumed in relatively smaller quantities, but are essential to body processes.[38] The food guide pyramid is a pyramid-shaped guide of healthy foods divided into sections. Each section shows the recommended intake for each food group (i.e., protein, fat, carbohydrates and sugars). Making healthy food choices can lower one's risk of heart disease and the risk of developing some types of cancer, and can help one maintain their weight within a healthy range.[39]

The Mediterranean diet is commonly associated with health-promoting effects. This is sometimes attributed to the inclusion of bioactive compounds such as phenolic compounds, isoprenoids and alkaloids.[40]

Exercise

Physical exercise enhances or maintains physical fitness and overall health and wellness. It strengthens one's bones and muscles and improves the cardiovascular system. According to the National Institutes of Health, there are four types of exercise: endurance, strength, flexibility, and balance.[41] The CDC states that physical exercise can reduce the risks of heart disease, cancer, type 2 diabetes, high blood pressure, obesity, depression, and anxiety.[42] For the purpose of counteracting possible risks, it is often recommended to start physical exercise gradually as one goes. Participating in any exercising, whether it is housework, yardwork, walking or standing up when talking on the phone, is often thought to be better than none when it comes to health.[43]

Sleep

Sleep is an essential component to maintaining health. In children, sleep is also vital for growth and development. Ongoing sleep deprivation has been linked to an increased risk for some chronic health problems. In addition, sleep deprivation has been shown to correlate with both increased susceptibility to illness and slower recovery times from illness.[44] In one study, people with chronic insufficient sleep, set as six hours of sleep a night or less, were found to be four times more likely to catch a cold compared to those who reported sleeping for seven hours or more a night.[45] Due to the role of sleep in regulating metabolism, insufficient sleep may also play a role in weight gain or, conversely, in impeding weight loss.[46] Additionally, in 2007, the International Agency for Research on Cancer, which is the cancer research agency for the World Health Organization, declared that "shiftwork that involves circadian disruption is probably carcinogenic to humans", speaking to the dangers of long-term nighttime work due to its intrusion on sleep.[47] In 2015, the National Sleep Foundation released updated recommendations for sleep duration requirements based on age, and concluded that "Individuals who habitually sleep outside the normal range may be exhibiting signs or symptoms of serious health problems or, if done volitionally, may be compromising their health and well-being."[48]

Age and condition	Sleep Needs
Newborns (0–3 months)	14 to 17 hours
Infants (4–11 months)	12 to 15 hours
Toddlers (1–2 years)	11 to 14 hours
Preschoolers (3–5 years)	10 to 13 hours
School-age children (6–13 years)	9 to 11 hours
Teenagers (14–17 years)	8 to 10 hours
Adults (18–64 years)	7 to 9 hours
Older Adults (65 years and over)	7 to 8 hours

Role of science

Duration: 1 minute and 49 seconds.1:49 The Dutch Public Health Service provides medical care for the natives of the Dutch East Indies, May 1946.

Health science is the branch of science focused on health. There are two main approaches to health science: the study and research of the body and health-related issues to understand how humans (and animals) function, and the application of that knowledge to improve health and to prevent and cure diseases and other physical

and mental impairments. The science builds on many sub-fields, including biology, biochemistry, physics, epidemiology, pharmacology, medical sociology. Applied health sciences endeavor to better understand and improve human health through applications in areas such as health education, biomedical engineering, biotechnology and public health.

Organized interventions to improve health based on the principles and procedures developed through the health sciences are provided by practitioners trained in medicine, nursing, nutrition, pharmacy, social work, psychology, occupational therapy, physical therapy and other health care professions. Clinical practitioners focus mainly on the health of individuals, while public health practitioners consider the overall health of communities and populations. Workplace wellness programs are increasingly being adopted by companies for their value in improving the health and well-being of their employees, as are school health services to improve the health and well-being of children.

Role of medicine and medical science

Contemporary medicine is in general conducted within health care systems. Legal, credentialing and financing frameworks are established by individual governments, augmented on occasion by international organizations, such as churches. The characteristics of any given health care system have significant impact on the way medical care is provided.

From ancient times, Christian emphasis on practical charity gave rise to the development of systematic nursing and hospitals and the Catholic Church today remains the largest non-government provider of medical services in the world.[49] Advanced industrial countries (with the exception of the United States)[50] and many developing countries provide medical services through a system of universal health care that aims to guarantee care for all through a single-payer health care system, or compulsory private or co-operative health insurance. This is intended to ensure that the entire population has access to medical care on the basis of need rather than ability to pay. Delivery may be via private medical practices or by state-owned hospitals and clinics, or by charities, most commonly by a combination of all three.

Most tribal societies provide no guarantee of healthcare for the population as a whole. In such societies, healthcare is available to those that can afford to pay for it or have self-insured it (either directly or as part of an employment contract) or who may be covered by care financed by the government or tribe directly.

Transparency of information is another factor defining a delivery system. Access to information on conditions, treatments, quality, and pricing greatly affects the choice by patients/consumers and, therefore, the incentives of medical professionals. While the US healthcare system has come under fire for lack of openness,[51] new legislation may encourage greater openness. There is a perceived tension between the need for transparency on the one hand and such issues as patient confidentiality and the possible exploitation of information for commercial gain on the other.

Delivery

Provision of medical care is classified into primary, secondary, and tertiary care categories.[52]

Primary care medical services are provided by physicians, physician assistants, nurse practitioners, or other health professionals who have first contact with a patient seeking medical treatment or care.[53] These occur in physician offices, clinics, nursing homes, schools, home visits, and other places close to patients. About 90% of medical visits can be treated by the primary care provider. These include treatment of acute and chronic illnesses, preventive care and health education for all ages and both sexes.

Secondary care medical services are provided by medical specialists in their offices or clinics or at local community hospitals for a patient referred by a primary care provider who first diagnosed or treated the patient.[54] Referrals are made for those patients who required the expertise or procedures performed by specialists. These include both ambulatory care and inpatient services, Emergency departments, intensive care medicine, surgery services, physical therapy, labor and delivery, endoscopy units, diagnostic laboratory and medical imaging services, hospice centers, etc. Some primary care providers may also take care of hospitalized patients and deliver babies in a secondary care setting.

Tertiary care medical services are provided by specialist hospitals or regional centers equipped with diagnostic and treatment facilities not generally available at local hospitals. These include trauma centers, burn treatment centers, advanced neonatology unit services, organ transplants, high-risk pregnancy, radiation oncology, etc.

Modern medical care also depends on information – still delivered in many health care settings on paper records, but increasingly nowadays by electronic means.

In low-income countries, modern healthcare is often too expensive for the average person. International healthcare policy researchers have advocated that "user fees" be removed in these areas to ensure access, although even after removal, significant costs and barriers remain.[55]

Separation of prescribing and dispensing is a practice in medicine and pharmacy in which the physician who provides a medical prescription is independent from the pharmacist who provides the prescription drug. In the Western world there are centuries of tradition for separating pharmacists from physicians. In Asian countries, it is traditional for physicians to also provide drugs.[56]

Role of public health

Public health has been described as "the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals."[57] It is concerned with threats to the overall health of a community based on population health analysis. The population in question can be as small as a handful of people or as large as all the inhabitants of several continents (for instance, in the case of a pandemic). Public health has many sub-fields, but typically includes the interdisciplinary categories of epidemiology, biostatistics and health services. environmental health, community health, behavioral health, and occupational health are also important areas of public health.

The focus of public health interventions is to prevent and manage diseases, injuries and other health conditions through surveillance of cases and the promotion of healthy behavior, communities, and (in aspects relevant to human health) environments. Its aim is to prevent health problems from happening or re-occurring by implementing educational programs, developing policies, administering services and conducting research.[58] In many cases, treating a disease or controlling a pathogen can be vital to preventing it in others, such as during an outbreak. Vaccination programs and distribution of condoms to prevent the spread of communicable diseases are examples of common preventive public health measures, as are educational campaigns to promote vaccination and the use of condoms (including overcoming resistance to such).

Public health also takes various actions to limit the health disparities between different areas of the country and, in some cases, the continent or world. One issue is the access of individuals and communities to health care in terms of financial, geographical or socio-cultural constraints.[59] Applications of the public health system include the areas of maternal and child health, health services administration, emergency response, and prevention and control of infectious and chronic diseases.

The great positive impact of public health programs is widely acknowledged. Due in part to the policies and actions developed through public health, the 20th century registered a decrease in the mortality rates for infants and children and a continual increase in life expectancy in most parts of the world. For example, it is estimated that life expectancy has increased for Americans by thirty years since 1900,[60] and worldwide by six years since 1990.[61]

Self-care strategies

Personal health depends partially on the active, passive, and assisted cues people observe and adopt about their own health. These include personal actions for preventing or minimizing the effects of a disease, usually a chronic condition, through integrative care. They also include personal hygiene practices to prevent infection and illness, such as bathing and washing hands with soap; brushing and flossing teeth; storing, preparing and handling food safely; and many others. The information gleaned from personal observations of daily living – such as about sleep patterns, exercise behavior, nutritional intake and environmental features – may be used to inform personal decisions and actions (*e.g.*, "I feel tired in the morning so I am going to try sleeping on a different pillow"), as well as clinical decisions and treatment plans (*e.g.*, a patient who notices his or her shoes are tighter than usual may be having exacerbation of left-sided heart failure, and may require diuretic medication to reduce fluid overload).[62]

Personal health also depends partially on the social structure of a person's life. The maintenance of strong social relationships, volunteering, and other social activities have been linked to positive mental health and also increased longevity. One American study among seniors over age 70, found that frequent volunteering was associated with reduced risk of dying compared with older persons who did not volunteer, regardless of physical health status.[63] Another study from Singapore reported that volunteering retirees had significantly better cognitive performance scores, fewer depressive symptoms, and better mental well-being and life satisfaction than non-volunteering retirees.[64]

Prolonged psychological stress may negatively impact health, and has been cited as a factor in cognitive impairment with aging, depressive illness, and expression of disease.[65] Stress management is the application of methods to either reduce stress or increase tolerance to stress. Relaxation techniques are physical methods used to relieve stress. Psychological methods include cognitive therapy, meditation, and positive thinking, which work by reducing response to stress. Improving relevant skills, such as problem solving and time management skills, reduces uncertainty and builds confidence, which also reduces the reaction to stress-causing situations where those skills are applicable.

Occupational

In addition to safety risks, many jobs also present risks of disease, illness and other long-term health problems. Among the most common occupational diseases are various forms of pneumoconiosis, including silicosis and coal worker's pneumoconiosis (black lung disease). Asthma is another respiratory illness that many workers are vulnerable to. Workers may also be vulnerable to skin diseases, including eczema, dermatitis, urticaria, sunburn, and skin cancer.[66] Other occupational diseases of concern include carpal tunnel syndrome and lead poisoning.

As the number of service sector jobs has risen in developed countries, more and more jobs have become sedentary, presenting a different array of health problems than those associated with manufacturing and the primary sector. Contemporary problems, such as the growing rate of obesity and issues relating to stress and overwork in many countries, have further complicated the interaction between work and health.

Many governments view occupational health as a social challenge and have formed public organizations to ensure the health and safety of workers. Examples of these include the British Health and Safety Executive and in the United States, the National Institute for Occupational Safety and Health, which conducts research on occupational health and safety, and the Occupational Safety and Health Administration, which handles regulation and policy relating to worker safety and health.[67]

Yorum

WHO göre sağlık; Fizik, mental ve sosyal olarak tam iyi olma ve hastalık ve hasta olma durumunun oluşmamasıdır.

Etkileşim: Genetik geçiş ötesinde kişilerin uygulamaları ve yaptıkları ile oluşanlar açısından, örneğin sigara içmek ile oluşan zararlar nedeniyle kişisel karakterler, beden yapısı ötesinde kendi, kendimize yaptığımız sorunlar ile karşılaşmaktayız.

Tarihe: İnsan var olduğu sürece sağlık önemli yer tutmuştur. Ancak global teşkilatlanma nispeten yeni olduğu söylenebilir.

Etkileyen Faktörler: Yaşam tarzı etkili olsa bile bunu değiştirmek olasıdır. Bu açıdan parametreler: cahil/eğitimli olmak, çalışma koşulları/boş oturmak, gelirsiz/sosyal gelirli zengin olmak, fiziksel çevre sağlıklı/sağlıksız olması, Sosyal çevresi bozuk/etkin değerli olması, Sosyal destek, katkı alması/desteksiz yaşaması, Biyolojik sağlıklı/genetik, engelli olması, kültürel yapısı zorlamalı/birey hakkı üzerine olması, cinsiyet üzere sorunlar/dengeli cinsiyeti olması, sağlık bakım servislerden yararlanması/yararlanmaması, çocukluk döneminde sağlıklı beslenmesi/gelişimin sorunlu olması, kişisel sağlık yaklaşımlarını yapması/kalıp ve kopya içinde olması belirtililerken bir de anne sürü ile emzirmesi/biberon ile beslenmesinin de eklenmesi yerinde olacaktır. Çevre sağlığı da en önemli faktörlerdendir

İnsanın Hastalıkları: Salgın olmasa bile yaşam artması ile birlikte bazı hastalıklar daha sık görülecek ve ölüm nedeni olacaktır. Kalp hastalıkları ile kanser ilk sırayı alacaktır. Büyük kısmı önlenebilir olsa bile, bunlarda öne çıkan erken tanı yaklaşımı olacaktır.

Akıl sağlığı: İnsan olmanın özellikle hayvanlardan ayrıcı faktör akıl olduğuna göre akıl sağlığı ilk plansa irdelenmesi gerekenler içindedir. Biyoloji, ailesel ve hayat tecrübesi ötesinde bireye özgü eğitimin önemi belirgin etkilidir.

Sağlığın sürdürülebilir olması: Her bireyin kendi özel dosyasının olması, bunun tüm tıbbi boyutlarda bilinmesi ile bir halka oluşur ve kişi nereye giderse gitsin, sağlık konusunda izlenmekte, hastalıklardan temel korunmaya çalışılmasının gerektiği fark edilmelidir.

Beslenme: Hastalıkların en sık nedeni veya en çözümlenmesi olanaklı boyutu beslenmedir. Yeterli ve etkin beslenme ile, örneğin anne sütü ile emziren bebeklerde hastalık gözlenmez denilebilir. Bireye özgü beslenme olmalı, bu Diyetisyenlerin aslı uzmanlık konusu olmaktadır.

Sağlıklı Yaşam ve egzersiz: Bedenin sağlıklı olması için egzersiz önemlidir. Ancak bu kapasite ve yapıya göre uyarlanmalıdır.

Uyku: Sağlıklı olmak için uykunun rolü önemlidir. Bu kaynakta bunun üzerinde de durulmuştur.

Bilimlerin Tıp yaklaşımına etkisi: Tıp, doğrudan uygulayıcı olduğundan bir buluş önemli sağlık katkısı olmaktadır. Örneğin Covid aşısı bulunması ile salgın önlenebilir olmuştur.

Tıp Bilimi ve Sağlık boyutu: Ülkemizde Tıp Fakülte Hastaneleri sayısının yüksek olması ötesinde, sağlığa yaptıkları katkılar nedeniyle de önemli rol üstlenmektedirler. Tıp Bilimi, sadece hekim yetiştirme ötesinde hastalarla doğrudan etkileşim içinde olarak bilime de katkılar sağlamalıdırlar.

Sağlık Bakım Yerleri: Hastaların bakılacağı yerler, sadece tedavi amacı ötesinde, bireylerin yetişmesi ve geliştirme ve ilerleme açısından da öne çıkarılmalıdır. Tıp Fakültesi Hastanelerinin ayrıca hizmet dışında bu işlevleri öne çıkmaktadır.

Halk Salığı etkileşimi: Bir konu ile mücadele etmek için, onun öncelikle toplumdaki boyutuna bakmak gerekir. Aşılanmayan bir toplumda kızamık salgını olmasından korkulması doğaldır.

Toplum Sağlığı: Toplumda salgın hastalıkların kontrolü önemlidir.
Eğitim programları ile sağlık yaklaşımlarının öğretilmesi ve uygulamaları öne çıkarılmalıdır.
Kronik hastalıklar açısından sigara, alkol ve diğer alışkınlıklarla mücadele katkı sağlamaktadır.
Teknolojik yaklaşımlar ile olumlu katkı verileri, örneğin ABD olarak 1900 yıllarda yaşam beklentisi 30 yaş iken, 1990 yıllarında 60 yaşa yükseldiği belirtilmektedir.

Sağlığın temeli bireyin bilinçlenmesi, kendisini korumak ve gözetmekten geçmektedir: Hijyen; yıkanma, diş temizliği, yiyeceklerin güveni tutulması, saklanması, daha birçok boyutlar eğitilmeli ve korunmada öne çıkarılmalıdır.
Tıp, Medikal, kaynak olarak hekimden oluştuğu, Latin kaynaklarından öğrenilmektedir.
Bazı hastalıkların önlenmesi için, kalp ve damar hastalıklarında şişmanlamama, şeker kontrolü ve birçok boyut önemli olmaktadır.
Ruhsal açıdan da depresyona girmemek, psikolojik stres ile baş etmek önemli olmaktadır. Stres kontrolü önemlidir. Pozitif düşünme ve problem çözme teknikleri ile bilim üzere olarak zamanı ayarlamak önemli olmaktadır.
Yaşam bir denge ise, bunun sağlanmasında kişi rolü en öndedir.

Meslek Hastalığı: Tüm iş kollarında meslek hastalığı kavramı vardır.

Hekimlikte ise, bulaşma yollarını bildikleri için, hastalanma kendi kabahatleri olarak görülür. Tedbir almadıkları için ayrıca da bir ihtar alınır.
Amerikan Sağlık Teşkilatı WHO tarafından ceza gördü, kolera sorunlu durumda, hastaların tuvalet artıklarını nehre salarak salgının artmasına neden oldukları vurgusu ile verilmiştir. Tedbir almaları gerekir ve ondan sonra hekimlik yapılmalıdır kuralını gerekçeye örnek sunulmuştur.

Bazı hastalıkların önlenmesi, güneş yanığına bağlı kanserler gibi durumlar için gölgelikte oturmak; Obesite ile diyabet boyutu şeklindeki olanlarda da egzersiz öneminin vurgulanması öne çıkmaktadır.
Birçok maddenin poşetinde de uyarıların olması, hastalığın oluşmasının engellenmesi için önemlidir.

NEONATOLOJİ AÇISINDAN: Tıp eğitimi olarak mutlaka Yenidoğan dönemi özellikle eğitimin bir parçasıdır. Bu açıdan uzmanlık olarak daha sonra gelişmiş olmasına karşın, prematüreliğin yaşatılması, sağlıklı büyütülmesi ile giderek önem kazanmıştır. Uzmanlaşma ile belirgin, mortalite ve mortalitede azalma olmuştur. Sekel oranları da oluşmadığı anlaşılmaktadır.

Bu kadar fark etmesi, aklı karıştırabilir, daha önce sorun olunca destek ve yardım istenirken, zamanımızda doğumhanede, gebelik ile birlikte ortak takip yapılmaktadır. Sezaryen kararı da Perinatolog ve Neonatolog ortak toplantıda alınmaktadır. Sorumluluk paylaşılmaktadır. En hızlı ekip 2 dakikada gelirken, bebeğin yanında olan ise, saniyeler içinde solunu ve dolaşımı sağlamaktadırlar. Bu nedenle belirgin fark ortaklıktan kaynaklanmaktadır.

Sağlığın Sağlanması için gereken Tıbbi Bakım Boyutu

İnsan yapısal olarak kendi başına açtıkları sayılmaz ise de yaşamda sağlık sorunları geçirecekleri doğal bir beklentidir. Önemli olan sorun oluşmadan yaklaşım yapmak, sağlığın sürdürülebilir olmasıdır. Bu açıdan, a) Sağlıklı olmanın devamlılığı, aşılama gibi, b) Kontrol, c) Birinci düzey, sorunluların başvurması, d) Hasta başvurusu ve tedavi, e) Yoğun Bakım tedavisi, f) Yaşam sınırında olanların sürekli bakımları, yaşlı bakımı, evde bakım gibi yaklaşımlar.

Hacettepe ilk sene, aile ziyaretleri yapılarak, bebeklerinin beslenmesi anlatılıyordu, biz ailelerden daha fazla dinliyorduk ve bunu yaşamımızda da kullandık. Bu açıdan evde yaklaşımın önemi yadsınamaz.

Universal health care, Wikipedia[3]

Universal health care (also called **universal health coverage**, **universal coverage**, or **universal care**) is a health care system in which all residents of a particular country or region are assured access to health care. It is generally organized around providing either all residents or only those who cannot afford on their own, with either health services or the means to acquire them, with the end goal of improving health outcomes.[1]
Universal healthcare does not imply coverage for all cases and for all people – only that all people have access to healthcare when and where needed without financial hardship. Some universal healthcare systems are government-funded, while others are based on a requirement that all citizens purchase private health

insurance. Universal healthcare can be determined by three critical dimensions: who is covered, what services are covered, and how much of the cost is covered.[1] It is described by the World Health Organization as a situation where citizens can access health services without incurring financial hardship.[2] Then-Director General of the WHO Margaret Chan described universal health coverage as the "single most powerful concept that public health has to offer" since it unifies "services and delivers them in a comprehensive and integrated way".[3] One of the goals with universal healthcare is to create a system of protection which provides equality of opportunity for people to enjoy the highest possible level of health.[4] Critics say that universal healthcare leads to longer wait times and worse quality healthcare.[5]

As part of Sustainable Development Goals, United Nations member states have agreed to work toward worldwide universal health coverage by 2030.[6][*better source needed*] Therefore the inclusion of the universal health coverage (UHC) within the SDGs targets can be related to the reiterated endorsements operated by the WHO.[7]

History

Starting year of universal health care.[8] Links are "Healthcare in COUNTRY".

Country	Year
Australia	1975
Austria	1967
Bahrain	1957
Belgium	1945
Brunei	1958
Canada	1966
Cyprus	1980
Denmark	1973
Finland	1972
France	1974
Germany	1941
Greece	1983
Hong Kong	1993
Iceland	1990
Ireland	1977
Israel	1995
Italy	1978

Starting year of universal health care.[8] Links are "Healthcare in COUNTRY".

Country	Year
Japan	1938
Kuwait	1950
Luxembourg	1973
Netherlands	1966
New Zealand	1938
Norway	1912
Portugal	1979
Singapore	1993
Slovenia	1972
South Korea	1988
Spain	1986
Sweden	1955
Taiwan	1995
Switzerland	1994
United Arab Emirates	1971
United Kingdom	1948

The first move towards a national health insurance system was launched in Germany in 1883, with the Sickness Insurance Law. Industrial employers were mandated to provide injury and illness insurance for their low-wage workers, and the system was funded and administered by employees and employers through "sick funds", which were drawn from deductions in workers' wages and from employers' contributions. This social health insurance model, named the Bismarck Model after Prussian Chancellor Otto von Bismarck, was the first form of universal care in modern times.[9] Other countries soon began to follow suit. In the United Kingdom, the National Insurance Act 1911 provided coverage for primary care (but not specialist or hospital care) for wage earners, covering about one-third of the population. The Russian Empire established a similar system in 1912, and other industrialized countries began following suit. By the 1930s, similar systems existed in virtually all of Western and Central Europe. Japan introduced an employee health insurance law in 1927, expanding further upon it in 1935 and 1940. Following the Russian Revolution of 1917, a fully public and centralized health care system was

established in Soviet Russia in 1920.[10][11] However, it was not a truly universal system at that point, as rural residents were not covered.
In New Zealand, a universal health care system was created in a series of steps, from 1938 to 1941.[12][13] In Australia, the state of Queensland introduced a free public hospital system in 1946.
Following World War II, universal health care systems began to be set up around the world. On July 5, 1948, the United Kingdom launched its universal National Health Service. Universal health care was next introduced in the Nordic countries of Sweden (1955),[14] Iceland (1956),[15] Norway (1956),[16] Denmark (1961)[17] and Finland (1964).[18]
Universal health insurance was introduced in Japan in 1961, and in Canada through stages, starting with the province of Saskatchewan in 1962, followed by the rest of Canada from 1968 to 1972.[12][19] A public healthcare system was introduced in Egypt following the Egyptian revolution of 1952. Centralized public healthcare systems were set up in the Eastern bloc countries. The Soviet Union extended universal health care to its rural residents in 1969.[12][20] Kuwait and Bahrain introduced their universal healthcare systems in 1950 and 1957 respectively (prior to independence).[21] Italy introduced its *Servizio Sanitario Nazionale* (National Health Service) in 1978. Universal health insurance was implemented in Australia in 1975 with the *Medibank*, which led to universal coverage under the current Medicare system from 1984.[*citation needed*]
From the 1970s to the 2000s, Western European countries began introducing universal coverage, most of them building upon previous health insurance programs to cover the whole population. For example, France built upon its 1928 national health insurance system, with subsequent legislation covering a larger and larger percentage of the population, until the remaining 1% of the population that was uninsured received coverage in 2000.[22][23] Single payer healthcare systems were introduced in Finland (1972), Portugal (1979), Cyprus (1980), Spain (1986) and Iceland (1990). Switzerland introduced a universal healthcare system based on an insurance mandate in 1994.[24][21] In addition, universal health coverage was introduced in some Asian countries, including South Korea (1989), Taiwan (1995), Singapore (1993), Israel (1995) and Thailand (2001).
Following the collapse of the Soviet Union, Russia retained and reformed its universal health care system,[25] as did other now-independent former Soviet republics and Eastern bloc countries.
Beyond the 1990s, many countries in Latin America, the Caribbean, Africa and the Asia-Pacific region, including developing countries, took steps to bring their populations under universal health coverage, including China which has the largest universal health care system in the world[26] and Brazil's SUS[27] which improved coverage up to 80% of the population.[28] India introduced a tax-payer funded decentralised universal healthcare system that helped reduce mortality rates drastically and improved healthcare infrastructure across the country dramatically.[29] A 2012 study examined progress being made by these countries, focusing on nine in particular: Ghana, Rwanda, Nigeria, Mali, Kenya, Indonesia, the Philippines and Vietnam.[30][31]
Currently, most industrialized countries and many developing countries operate some form of publicly funded health care with universal coverage as the goal. According to the National Academy of Medicine and others, the United States is the only wealthy, industrialized nation that does not provide universal health care. The only forms of government-provided healthcare available are Medicare (for elderly patients as well as people with disabilities), Medicaid (for low-income people),[32][33] the Military Health System (active, reserve, and retired military personnel and dependents), and the Indian Health Service (members of federally recognized Native American tribes).

Funding models

Universal health care in most countries has been achieved by a mixed model of funding. General taxation revenue is the primary source of funding, but in many countries it is supplemented by specific charge (which may be charged to the individual or an employer) or with the option of private payments (by direct or optional insurance) for services beyond those covered by the public system. Almost all European systems are financed through a mix of public and private contributions.[36] Most universal health care systems are funded primarily by tax revenue (as in Portugal,[36] India, Spain, Denmark and Sweden). Some nations, such as Germany, France,[37] and Japan,[38] employ a multi-payer system in which health care is funded by private and public contributions. However, much of the non-government funding comes from contributions from employers and employees to regulated non-profit sickness funds. Contributions are compulsory and defined according to law. A distinction is also made between municipal and national healthcare funding. For example, one model is that the bulk of the healthcare is funded by the municipality, specialty healthcare is provided and possibly

funded by a larger entity, such as a municipal co-operation board or the state, and medications are paid for by a state agency. A paper by Sherry A. Glied from Columbia University found that universal health care systems are modestly redistributive and that the progressivity of health care financing has limited implications for overall income inequality.[39]

Compulsory insurance

This is usually enforced via legislation requiring residents to purchase insurance, but sometimes the government provides the insurance. Sometimes there may be a choice of multiple public and private funds providing a standard service (as in Germany) or sometimes just a single public fund (as in the Canadian provinces). Healthcare in Switzerland is based on compulsory insurance.[40][41]

In some European countries where private insurance and universal health care coexist, such as Germany, Belgium and the Netherlands, the problem of adverse selection is overcome by using a risk compensation pool to equalize, as far as possible, the risks between funds. Thus, a fund with a predominantly healthy, younger population has to pay into a compensation pool and a fund with an older and predominantly less healthy population would receive funds from the pool. In this way, sickness funds compete on price and there is no advantage in eliminating people with higher risks because they are compensated for by means of risk-adjusted capitation payments. Funds are not allowed to pick and choose their policyholders or deny coverage, but they compete mainly on price and service. In some countries, the basic coverage level is set by the government and cannot be modified.[42]

The Republic of Ireland at one time had a "community rating" system by VHI, effectively a single-payer or common risk pool. The government later opened VHI to competition, but without a compensation pool. That resulted in foreign insurance companies entering the Irish market and offering much less expensive health insurance to relatively healthy segments of the market, which then made higher profits at VHI's expense. The government later reintroduced community rating by a pooling arrangement and at least one main major insurance company, BUPA, withdrew from the Irish market.[*citation needed*]

In Poland, people are obliged to pay a percentage of the average monthly wage to the state, even if they are covered by private insurance.[43] People working under a employment contract pay a percentage of their wage, while entrepreneurs pay a fixed rate, based on the average national wage. Unemployed people are insured by the labor office.

Among the potential solutions posited by economists are single-payer systems as well as other methods of ensuring that health insurance is universal, such as by requiring all citizens to purchase insurance or by limiting the ability of insurance companies to deny insurance to individuals or vary price between individuals.[44][45]

Single-payer

Single-payer health care is a system in which the government, rather than private insurers, pays for all health care costs.[46] Single-payer systems may contract for healthcare services from private organizations, or own and employ healthcare resources and personnel (as was the case in England before the introduction of the Health and Social Care Act). In some instances, such as Italy and Spain, both these realities may exist at the same time.[9] "Single-payer" thus describes only the funding mechanism and refers to health care financed by a single public body from a single fund and does not specify the type of delivery or for whom doctors work. Although the fund holder is usually the state, some forms of single-payer use a mixed public-private system.[*citation needed*]

Tax-based financing

In tax-based financing, individuals contribute to the provision of health services through various taxes. These are typically pooled across the whole population unless local governments raise and retain tax revenues. Some countries (notably Spain, the United Kingdom, Ireland, New Zealand, Italy, Brazil, Portugal, India and the Nordic countries) choose to fund public health care directly from taxation alone. Other countries with insurance-based systems effectively meet the cost of insuring those unable to insure themselves via social security arrangements funded from taxation, either by directly paying their medical bills or by paying for insurance premiums for those affected.[*citation needed*]

Social health insurance

In a social health insurance system, contributions from workers, the self-employed, enterprises and governments are pooled into single or multiple funds on a compulsory basis. This is based on risk pooling.[47] The social health insurance model is also referred to as the **Bismarck Model**, after Chancellor Otto von Bismarck, who introduced the first universal health care system in Germany in the 19th century.[48] The funds typically

contract with a mix of public and private providers for the provision of a specified benefit package. Preventive and public health care may be provided by these funds or responsibility kept solely by the Ministry of Health. Within social health insurance, a number of functions may be executed by parastatal or non-governmental sickness funds, or in a few cases, by private health insurance companies. Social health insurance is used in a number of Western European countries and increasingly in Eastern Europe as well as in Israel and Japan.[49]

Private insurance

In private health insurance, premiums are paid directly from employers, associations, individuals and families to insurance companies, which pool risks across their membership base. Private insurance includes policies sold by commercial for-profit firms, non-profit companies and community health insurers. Generally, private insurance is voluntary in contrast to social insurance programs, which tend to be compulsory.[50]

In some countries with universal coverage, private insurance often excludes certain health conditions that are expensive and the state health care system can provide coverage. For example, in the United Kingdom, one of the largest private health care providers is BUPA, which has a long list of general exclusions even in its highest coverage policy,[51] most of which are routinely provided by the National Health Service. In the Netherlands, which has regulated competition for its main insurance system (but is subject to a budget cap), insurers must cover a basic package for all enrollees, but may choose which additional services they offer in supplementary plans; which most people possess[*citation needed*].

The Planning Commission of India has also suggested that the country should embrace insurance to achieve universal health coverage.[52] General tax revenue is currently used to meet the essential health requirements of all people.

Community-based health insurance

A particular form of private health insurance that has often emerged, if financial risk protection mechanisms have only a limited impact, is community-based health insurance.[53] Individual members of a specific community pay to a collective health fund which they can draw from when they need medical care. Contributions are not risk-related and there is generally a high level of community involvement in the running of these plans. Community-based health insurance generally only play a limited role in helping countries move towards universal health coverage. Challenges includes inequitable access by the poorest[54] that health service utilization of members generally increase after enrollment.[53]

Implementation and comparisons

Universal health care systems vary according to the degree of government involvement in providing care or health insurance. In some countries, such as Canada, the UK, Spain, Italy, Australia, and the Nordic countries, the government has a high degree of involvement in the commissioning or delivery of health care services and access is based on residence rights, not on the purchase of insurance. Others have a much more pluralistic delivery system, based on obligatory health with contributory insurance rates related to salaries or income and usually funded by employers and beneficiaries jointly.[*citation needed*]

Sometimes, the health funds are derived from a mixture of insurance premiums, salary-related mandatory contributions by employees or employers to regulated sickness funds, and by government taxes. These insurance-based systems tend to reimburse private or public medical providers, often at heavily regulated rates, through mutual or publicly owned medical insurers. A few countries, such as the Netherlands and Switzerland, operate via privately owned but heavily regulated private insurers, which are not allowed to make a profit from the mandatory element of insurance but can profit by selling supplemental insurance.[*citation needed*]

Universal health care is a broad concept that has been implemented in several ways. The common denominator for all such programs is some form of government action aimed at extending access to health care as widely as possible and setting minimum standards. Most implement universal health care through legislation, regulation, and taxation. Legislation and regulation direct what care must be provided, to whom, and on what basis. Usually, some costs are borne by the patient at the time of consumption, but the bulk of costs come from a combination of compulsory insurance and tax revenues. Some programs are paid for entirely out of tax revenues. In others, tax revenues are used either to fund insurance for the very poor or for those needing long-term chronic care.

A critical concept in the delivery of universal healthcare is that of population healthcare. This is a way of organizing the delivery, and allocating resources, of healthcare (and potentially social care) based on populations in a given geography with a common need (such as asthma, end of life, urgent care). Rather than focus on institutions such as hospitals, primary care, community care etc. the system focuses on the population

with a common as a whole. This includes people currently being treated, and those that are not being treated but should be (i.e. where there is health inequity). This approach encourages integrated care and a more effective use of resources.[55]

The United Kingdom National Audit Office in 2003 published an international comparison of ten different health care systems in ten developed countries, nine universal systems against one non-universal system (the United States), and their relative costs and key health outcomes.[56] A wider international comparison of 16 countries, each with universal health care, was published by the World Health Organization in 2004.[57] In some cases, government involvement also includes directly managing the health care system, but many countries use mixed public-private systems to deliver universal health care.

Criticism and support

Critics of universal healthcare say that it leads to longer wait times and a decrease in the quality of healthcare.[5] Critics of implementing universal healthcare in the United States say that it would require healthy people to pay for the medical care of unhealthy people, which they say goes against the American values of individual choice and personal responsibility; it would raise healthcare expenditures due to the high cost of implementation that the United States government supposedly cannot pay; and represents unnecessary government overreach into the lives of American citizens, healthcare, the health insurance industry, and employers' rights to choose what health coverage they want to offer to their employees.[5]

Most contemporary studies posit that a single payer universal healthcare system would benefit the United States. According to a 2020 study published in *The Lancet*, the proposed Medicare for All Act would save 68,000 lives and $450 billion in national healthcare expenditure annually.[58] A 2022 study published in the *PNAS* found that a single-payer universal healthcare system would have saved 212,000 lives and averted over $100 billion in medical costs during the COVID-19 pandemic in the United States in 2020 alone.[59]

Yorum

Uluslararası Sağlık Bakımı: Sağlık teşkilatının uluslararası düzeye gelmesi önemli görülmektedir. WHO bunun tek bir çatı altında olduğu anlamında olduğunu belirtmektedir. Başlama yılı belirtilmiş ama Türkiye not edilmediği görülmektedir.

Masrafların karşılanması: Ülkemiz dahil, bu devlet tarafından karşılanmaktadır. Özel sektör olarak talebe göre yaklaşımlarda eş zamanlı, isteğe göre oluşmaktadır.

Amerika ise özel yapılanmanın bozulmaması gerektiği varsayımı ile devlet desteği yoktur. 11 Eylül saldırılarında itfaiye dumanlı, tozlu alana girmiş, bunlarda kronik silikoz akciğer hastalığı oluşmuş, maskesiz ve tüpsüz girdikleri için Devlet destek vermemiştir. Küba, Kanada gibi yerlere gitmişler, tüm mallarını sağlık harcamalarında harcasa bile yetişememişlerdir. Çünkü çok pahalıdır. Bir bakım Küba yakınlaşmasının bu hastalardan olduğu söylenmektedir. Yoğun Bakım günlük 12,000Dolar, ilaç hariç olduğunu düşünün. Genel yaralanmalarda, kişiler kendileri kesikleri, iğne ve iplik ile diktikleri, infeksiyon kapmasın diyerek tedbir aldıkları da söylenebilir.

Zorunlu Sağlık Sigortalama: Her maaştan zorunlu sigorta kesilmekte, bunu doğrudan işveren yapmaktadır. Aynı durum devlet içinde geçerlidir. Geliriz olanlara da Sosyal Sigortalama sistemi yeşil kart vererek yapmaktadır. Ayrıca acil olana ücret talep edilmemektedir. Daha sonra sigortadan alınmaktadır. Bu Ülkemizdeki durum olup, birçok yerde bu uygulanması zordur.

Bireysel ödeme ve vergi temelli ödemeler: Ülkemizde özel muayene dışındakiler devlete ücrendirilir fark hasta tarafından ödenmektedir. Vergilerden kesinti sağlık sistemine de aktarım olmaktadır.

Kamu ve toplum sağlık harcamaları: Genel bütçe kanalı ile ödemeler yapılmaktadır. Sağlık konusu birçok Bakanlığın kapsamında da olmaktadır.

Karşılaştırma: Sağlık ekonomisi boyutu olarak kaynak aktarımı konusunda her ülke farklı yaklaşmakta, burada her kaynaktan olmasına dikkat edilmelidir.

Sonuç: Dünya genelinde yüzbinlerce canın kurtarılması, daha sağlıklı bir nesil olduğu açık ve net rakamlara da yansımaktadır.

NEONATOLOJİ AÇISINDAN: Doğum yapılan yerlerin ev değil hastane olması, evde olması durumunda da sağlık ekibinin bulunması kuralı ile etkin ölüm ve morbiditede iyileşme gözlenmiştir. Daha önceden sadece Kadın, Doğum uzmanları iken, şimdi Neonatologlar ile birlikte ekip oluşması büyük bir aşama olmuştur. Bu bilimsel ötesinde beri açısından da etkinleşmiştir. Ortak sertifikasyon, canlandırma ve yaklaşım boyutu ile, anestezi, hemşirelik ve hekimlikte etkinlik ve beceri kazanılma olmuştur.

Health system, Wikipedia[4]

A **health system**, **health care system** or **healthcare system** is an organization of people, institutions, and resources that delivers health care services to meet the health needs of target populations.

There is a wide variety of health systems around the world, with as many histories and organizational structures as there are nations. Implicitly, nations must design and develop health systems in accordance with their needs and resources, although common elements in virtually all health systems are primary healthcare and public health measures.[1]

In certain nations, the orchestration of health system planning is decentralized, with various stakeholders in the market assuming responsibilities. In contrast, in other regions, a collaborative endeavor exists among governmental entities, labor unions, philanthropic organizations, religious institutions, or other organized bodies, aimed at the meticulous provision of healthcare services tailored to the specific needs of their respective populations. Nevertheless, it is noteworthy that the process of healthcare planning is frequently characterized as an evolutionary progression rather than a revolutionary transformation.[2][3]

As with other social institutional structures, health systems are likely to reflect the history, culture and economics of the states in which they evolve. These peculiarities bedevil and complicate international comparisons and preclude any universal standard of performance.

Goals

According to the World Health Organization (WHO), the directing and coordinating authority for health within the United Nations system, healthcare systems' goals are good health for the citizens, responsiveness to the expectations of the population, and fair means of funding operations. Progress towards them depends on how systems carry out four vital functions: provision of health care services, resource generation, financing, and stewardship.[4] Other dimensions for the evaluation of health systems include quality, efficiency, acceptability, and equity.[2] They have also been described in the United States as "the five C's": Cost, Coverage, Consistency, Complexity, and Chronic Illness.[5] Also, continuity of health care is a major goal.[6]

Definitions

Often health system has been defined with a reductionist perspective. Some authors[7] have developed arguments to expand the concept of health systems, indicating additional dimensions that should be considered:

- Health systems should not be expressed in terms of their components only, but also of their interrelationships;
- Health systems should include not only the institutional or supply side of the health system but also the population;

- Health systems must be seen in terms of their goals, which include not only health improvement, but also equity, responsiveness to legitimate expectations, respect of dignity, and fair financing, among others;
- Health systems must also be defined in terms of their functions, including the direct provision of services, whether they are medical or public health services, but also "other enabling functions, such as stewardship, financing, and resource generation, including what is probably the most complex of all challenges, the health workforce."[7]

World Health Organization definition

The World Health Organization defines health systems as follows:

A health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities. A health system is, therefore, more than the pyramid of publicly owned facilities that deliver personal health services. It includes, for example, a mother caring for a sick child at home; private providers; behaviour change programmes; vector-control campaigns; health insurance organizations; occupational health and safety legislation. It includes inter-sectoral action by health staff, for example, encouraging the ministry of education to promote female education, a well-known determinant of better health.[8]

Financial resources

There are generally five primary methods of funding health systems:[9]

1. general taxation to the state, county or municipality
2. national health insurance
3. voluntary or private health insurance
4. out-of-pocket payments
5. donations to charities

Healthcare models

	Universal		Non-universal	
	Single payer	**Multi-payer**	**Multi-payer**	**No insurance**
Single provider	Beveridge Model, Semashko model			
Multiple Providers	National Health Insurance	Bismarck model	Private health insurance	Out-of-pocket

Most countries' systems feature a mix of all five models. One study[10] based on data from the OECD concluded that all types of health care finance "are compatible with" an efficient health system. The study also found no relationship between financing and cost control.[*citation needed*] Another study examining single payer and multi payer systems in OECD countries found that single payer systems have significantly less hospital beds per 100,000 people than in multi payer systems.[11]

The term health insurance is generally used to describe a form of insurance that pays for medical expenses. It is sometimes used more broadly to include insurance covering disability or long-term nursing or custodial care needs. It may be provided through a social insurance program, or from private insurance companies. It may be obtained on a group basis (e.g., by a firm to cover its employees) or purchased by individual consumers. In each case premiums or taxes protect the insured from high or unexpected health care expenses.[*citation needed*]

Through the calculation of the comprehensive cost of healthcare expenditures, it becomes feasible to construct a standard financial framework, which may involve mechanisms like monthly premiums or annual taxes. This ensures the availability of funds to cover the healthcare benefits delineated in the insurance agreement. Typically, the administration of these benefits is overseen by a government agency, a nonprofit health fund, or a commercial corporation.[12]

Many commercial health insurers control their costs by restricting the benefits provided, by such means as deductibles, co-payments, coinsurance, policy exclusions, and total coverage limits. They will also severely

restrict or refuse coverage of pre-existing conditions. Many government systems also have co-payment arrangements but express exclusions are rare or limited because of political pressure. The larger insurance systems may also negotiate fees with providers.[*citation needed*]

Many forms of social insurance systems control their costs by using the bargaining power of the community they are intended to serve to control costs in the health care delivery system. They may attempt to do so by, for example, negotiating drug prices directly with pharmaceutical companies, negotiating standard fees with the medical profession, or reducing unnecessary health care costs. Social systems sometimes feature contributions related to earnings as part of a system to deliver universal health care, which may or may not also involve the use of commercial and non-commercial insurers. Essentially the wealthier users pay proportionately more into the system to cover the needs of the poorer users who therefore contribute proportionately less. There are usually caps on the contributions of the wealthy and minimum payments that must be made by the insured (often in the form of a minimum contribution, similar to a deductible in commercial insurance models).

In addition to these traditional health care financing methods, some lower income countries and development partners are also implementing non-traditional or innovative financing mechanisms for scaling up delivery and sustainability of health care,[13] such as micro-contributions, public-private partnerships, and market-based financial transaction taxes. For example, as of June 2011, UNITAID had collected more than one billion dollars from 29 member countries, including several from Africa, through an air ticket solidarity levy to expand access to care and treatment for HIV/AIDS, tuberculosis and malaria in 94 countries.[14]

Payment models

In most countries, wage costs for healthcare practitioners are estimated to represent between 65% and 80% of renewable health system expenditures.[15][16] There are three ways to pay medical practitioners: fee for service, capitation, and salary. There has been growing interest in blending elements of these systems.[17]

Fee-for-service

Fee-for-service arrangements pay general practitioners (GPs) based on the service.[17] They are even more widely used for specialists working in ambulatory care.[17]

There are two ways to set fee levels:[17]

- By individual practitioners.
- Central negotiations (as in Japan, Germany, Canada and in France) or hybrid model (such as in Australia, France's sector 2, and New Zealand) where GPs can charge extra fees on top of standardized patient reimbursement rates.

Capitation

In capitation payment systems, GPs are paid for each patient on their "list", usually with adjustments for factors such as age and gender.[17] According to OECD (Organization for Economic Co-operation and Development), "these systems are used in Italy (with some fees), in all four countries of the United Kingdom (with some fees and allowances for specific services), Austria (with fees for specific services), Denmark (one third of income with remainder fee for service), Ireland (since 1989), the Netherlands (fee-for-service for privately insured patients and public employees) and Sweden (from 1994). Capitation payments have become more frequent in "managed care" environments in the United States."[17]

According to OECD, "capitation systems allow funders to control the overall level of primary health expenditures, and the allocation of funding among GPs is determined by patient registrations". However, under this approach, GPs may register too many patients and under-serve them, select the better risks and refer on patients who could have been treated by the GP directly. Freedom of consumer choice over doctors, coupled with the principle of "money following the patient" may moderate some of these risks. Aside from selection, these problems are likely to be less marked than under salary-type arrangements.'[*citation needed*]

Salary arrangements

In several OECD countries, general practitioners (GPs) are employed on *salaries* for the government.[17] According to OECD, "Salary arrangements allow funders to control primary care costs directly; however, they may lead to under-provision of services (to ease workloads), excessive referrals to secondary providers and lack of attention to the preferences of patients."[17] There has been movement away from this system.[17]

Value-based care

In recent years, providers have been switching from fee-for-service payment models to a value-based care payment system, where they are compensated for providing value to patients. In this system, providers are given incentives to close gaps in care and provide better quality care for patients. [18]

Spending

Expand the OECD charts below to see the breakdown:

- "Government/compulsory": Government spending and compulsory health insurance.
- "Voluntary": Voluntary health insurance and private funds such as households' out-of-pocket payments, NGOs and private corporations.
- They are represented by columns starting at zero. They are not stacked. The 2 are combined to get the total.
- At the source you can run your cursor over the columns to get the year and the total for that country.[19]
- Click the table tab at the source to get 3 lists (one after another) of amounts by country: "Total", "Government/compulsory", and "Voluntary".[19]

Information resources

Sound information plays an increasingly critical role in the delivery of modern health care and efficiency of health systems. Health informatics – the intersection of information science, medicine and healthcare – deals with the resources, devices, and methods required to optimize the acquisition and use of information in health and biomedicine. Necessary tools for proper health information coding and management include clinical guidelines, formal medical terminologies, and computers and other information and communication technologies. The kinds of health data processed may include patients' medical records, hospital administration and clinical functions, and human resources information.[20]

The use of health information lies at the root of evidence-based policy and evidence-based management in health care. Increasingly, information and communication technologies are being utilized to improve health systems in developing countries through: the standardisation of health information; computer-aided diagnosis and treatment monitoring; informing population groups on health and treatment.[21]

Management

The management of any health system is typically directed through a set of policies and plans adopted by government, private sector business and other groups in areas such as personal healthcare delivery and financing, pharmaceuticals, health human resources, and public health.[*citation needed*]

Public health is concerned with threats to the overall health of a community based on population health analysis. The population in question can be as small as a handful of people, or as large as all the inhabitants of several continents (for instance, in the case of a pandemic). Public health is typically divided into epidemiology, biostatistics and health services. Environmental, social, behavioral, and occupational health are also important subfields.[*citation needed*]

Today, most governments recognize the importance of public health programs in reducing the incidence of disease, disability, the effects of ageing and health inequities, although public health generally receives significantly less government funding compared with medicine. For example, most countries have a vaccination policy, supporting public health programs in providing vaccinations to promote health. Vaccinations are voluntary in some countries and mandatory in some countries. Some governments pay all or part of the costs for vaccines in a national vaccination schedule.

The rapid emergence of many chronic diseases, which require costly long-term care and treatment, is making many health managers and policy makers re-examine their healthcare delivery practices. An important health issue facing the world currently is HIV/AIDS.[22] Another major public health concern is diabetes.[23] In 2006, according to the World Health Organization, at least 171 million people worldwide had diabetes. Its incidence is increasing rapidly, and it is estimated that by 2030, this number will double. A controversial aspect of public health is the control of tobacco smoking, linked to cancer and other chronic illnesses.[24]

Antibiotic resistance is another major concern, leading to the reemergence of diseases such as tuberculosis. The World Health Organization, for its World Health Day 2011 campaign, called for intensified global commitment to safeguard antibiotics and other antimicrobial medicines for future generations.

Health systems performance

Since 2000, more and more initiatives have been taken at the international and national levels in order to strengthen national health systems as the core components of the global health system. Having this scope in

mind, it is essential to have a clear, and unrestricted, vision of national health systems that might generate further progress in global health. The elaboration and the selection of performance indicators are indeed both highly dependent on the conceptual framework adopted for the evaluation of the health systems performance.[26] Like most social systems, health systems are complex adaptive systems where change does not necessarily follow rigid management models.[27] In complex systems path dependency, emergent properties and other non-linear patterns are seen,[28] which can lead to the development of inappropriate guidelines for developing responsive health systems.[29]

An increasing number of tools and guidelines are being published by international agencies and development partners to assist health system decision-makers to monitor and assess health systems strengthening[30] including human resources development[31] using standard definitions, indicators and measures. In response to a series of papers published in 2012 by members of the World Health Organization's Task Force on Developing Health Systems Guidance, researchers from the Future Health Systems consortium argue that there is insufficient focus on the 'policy implementation gap'. Recognizing the diversity of stakeholders and complexity of health systems is crucial to ensure that evidence-based guidelines are tested with requisite humility and without a rigid adherence to models dominated by a limited number of disciplines.[29][32] Healthcare services often implement Quality Improvement Initiatives to overcome this policy implementation gap. Although many of these initiatives deliver improved healthcare, a large proportion fail to be sustained. Numerous tools and frameworks have been created to respond to this challenge and increase improvement longevity. One tool highlighted the need for these tools to respond to user preferences and settings to optimize impact.[33]

Health Policy and Systems Research (HPSR) is an emerging multidisciplinary field that challenges 'disciplinary capture' by dominant health research traditions, arguing that these traditions generate premature and inappropriately narrow definitions that impede rather than enhance health systems strengthening.[34] HPSR focuses on low- and middle-income countries and draws on the relativist social science paradigm which recognises that all phenomena are constructed through human behaviour and interpretation. In using this approach, HPSR offers insight into health systems by generating a complex understanding of context in order to enhance health policy learning.[35] HPSR calls for greater involvement of local actors, including policy makers, civil society and researchers, in decisions that are made around funding health policy research and health systems strengthening.[36]

International comparisons

Health systems can vary substantially from country to country, and in the last few years, comparisons have been made on an international basis. The World Health Organization, in its *World Health Report 2000*, provided a ranking of health systems around the world according to criteria of the overall level and distribution of health in the populations, and the responsiveness and fair financing of health care services.[4] The goals for health systems, according to the WHO's *World Health Report 2000 – Health systems: improving performance* (WHO, 2000),[39] are good health, responsiveness to the expectations of the population, and fair financial contribution. There have been several debates around the results of this WHO exercise,[40] and especially based on the country ranking linked to it,[41] insofar as it appeared to depend mostly on the choice of the retained indicators.

Direct comparisons of health statistics across nations are complex. The Commonwealth Fund, in its annual survey, "Mirror, Mirror on the Wall", compares the performance of the health systems in Australia, New Zealand, the United Kingdom, Germany, Canada and the United States. Its 2007 study found that, although the United States system is the most expensive, it consistently underperforms compared to the other countries.[42] A major difference between the United States and the other countries in the study is that the United States is the only country without universal health care. The OECD also collects comparative statistics, and has published brief country profiles.[43][44][45] Health Consumer Powerhouse makes comparisons between both national health care systems in the Euro health consumer index and specific areas of health care such as diabetes[46] or hepatitis.[47]

Yorum

Sağlık hizmeti bir organizasyon yapısı ile verilmelidir: İnsan tek kişi gibi görünse bile, buna yaklaşım bir sistem ve tümü tek kişiye hizmet üzere olmalıdır. Nitekim zamanımızda bilişim sistemi, kişinin T.C. kimlik numarası ile ulaşmak olasıdır.

The Beveridge model (Wikipedia)[5]: The Beveridge model emphasizes health as a human right. Thus, universal coverage is provided by the government and anyone who is a citizen is given coverage and access to health care. **NOT: Ülkemizde de olduğu gibi, her bireyin hakkı olarak sağlık bakımı yapılmaktadır.**

In the Semashko model (Wikipedia)[6], medical services are provided by a hierarchy of state institutions under the supervision of Ministry of Healthcare and are financed from the national budget.[1] For the country's citizens, medical services are free and equal, with an emphasis on social hygiene and prevention of infectious diseases. **NOT: Ülkemizde de özel sektör konfor alanı şeklinde çalışmakta, birey rızasına göre yaklaşımı öngörmektedir. Genel sağlık yaklaşımları Devlet organizasyonları ile sağlanmaktadır.**

Sağlık Hedefleri: WHO eşitlik ilkesi ile, hastaya oluşan durumuna ve yapısına göre yaklaşım yapmayı hedeflemelidir. Sağlıklı yaşam, hastalıktan korumak, izlem ve bakım yanında hastalara hastalık durumuna göre, bakım verilmeli, gerekirse de sevk edilmelidir.

Sağlık tanımlanması: Sağlık tanımlamasında bazı noktalar dışlanmalıdır. Bunlar:

- Sağlık dallarına göre sınıflandırma kabul edilemez
- Kurumsal olarak da yapılandırılamaz
- Eşitlik boyutu içinde yaklaşım yapılmalıdır
- İşlevine göre tanımlanmalıdır.

İnsan tektir, bu açıdan birey temelinde yaklaşım esastır.

Dünya Sağlık Teşkilatı (WHO: Temel felsefe, birimiz hepimiz, hepimiz birimiz içindir felsefesi ile insan temelinde indirmek gayesini açıklamaktadır.

Maddi Kaynaklar: Genel vergilerden, ulusal sağlık sigortalama, kişisel sağlık sigortası, kişisel ödemeler, bağışlar ile oluşmaktadır.

Modeller: Tek, çoklu ödemeler, ulusal ve bireysel olarak ortak bütünleştirme sağlanmalıdır.

Bilgilenme: Zamanımızda her bireyin T.C. kimliği ile oluşan dosya, tüm sağlık kuruluşları tarafından paylaşılmaktadır. Bireyler de e-Devlet sitesinden girebilmektedirler.

Sağlık organizasyonu: Bu yapılanma ile hem ekonomik açıdan belirgin harcamadan düşmekte, hem de sağlık standardınca, mortalite ve morbidite düşmüştedir. Bu nedenle geri dönüş değil, daha ileri gitmek hedeflenmektedir.

Uluslararası karşılaştırma: Her ülkede farklı yapılanma olmuş olsa bile, daha önceki yapıda olan ile değişim boyutu ile alakalıdır. Ülkemizde pek farklı olmadığı sanılmaktadır.

NEONATOLOJİ AÇISINDAN: Mortalite ve morbidite belirgin fark olması ile sıklıkla Üniversitede başlayan yapılanma, ülke düzeyinde genişlemiş ve bir ülke politikası olarak yaygınlaştırılmış ve yapılandırılmıştır.

Ülkemizde Sağlık Bakımı

Ülkemizde sağlık konusunda çok farklı görüşler ve tartışmalar olmaktadır. Bunun nedeni Deontoloji nizamnamesinde Hekim hastanın kişiliği ve saygı, hürmetine dikkat etmeli ve yerine getirmeli (*başta gelen vazifesi, insan sağlığına, hayatına ve şahsiyetine ihtimam ve hürmet göstermektir*) denilmesidir. Bu ideal boyut ile karşılaştırıldığı için birçok öneri ve tenkitleri de birlikte getirmektedir.

Başka ülkelerdeki bu boyut olmadığı, kalıp içinde kaldıkları için uygun gören kadar, hatta daha fazla beğenmeyen vardır. Bu açıdan Ülkemiz sağlık açısından oldukça fazla, yılda bir milyon üstü tedavi için gelenler, kısaca sağlık turizmi olmaktadır.

Health care in Turkey, Wikipedia[7]

Healthcare in Turkey consists of a mix of public and private health services. Turkey introduced universal health care in 2003.[1] Known as Universal Health Insurance *Genel Sağlık Sigortası*, it is funded by a tax surcharge on employers, currently at 5%.[1] Public-sector funding covers approximately 75.2% of health expenditures.[1]
Despite the universal health care, total expenditure on health as a share of GDP is the lowest among OECD countries at 6.3% of GDP, much lower than the OECD average of 9.3%.[1] Median age in Turkey is 30 years compared to 43.9 average in EU countries. Aging population is the prime reason for higher healthcare expenditure in Europe.[2] Life expectancy is 78.5 years, compared with the EU average of 81 years.[1] Turkey has a high obesity rate, with 29.5% of its adult population obese.

Coverage

Due to major health reforms in the 2000s and 2010s, universal health insurance coverage for the population was achieved, and the general quality of health services improved greatly, with patient satisfaction rising from 39.5% in 2003 to 75.9% in 2011.[3]
The following medical treatments are covered by the SGK:[4]

- Emergencies
- Work accidents and vocational illnesses
- Infectious diseases
- Preventive health services (substance use)
- Childbirth
- Extraordinary events (injuries from war and natural disasters)
- Fertility treatment for women younger than 39
- Cosmetic surgery deemed medically necessary

While some SGK-contracted hospitals offer dental care, in most cases, patients must rely on private dental services and are responsible for covering the costs. In addition, patients must partially cover the cost of some prescription drugs and outpatient services.[4][3]

Statistics

Turkish data from 2016 unless indicated otherwise

	Turkey	OECD average	Rank
Health expenditure as % of GDP[5]	**6.3%**	**9.3%**	**37th**
Health expenditure per capita[5]	**$665**	**$3,223**	**37th**
% health expenditure publicly funded[5]	**75.2%**	**71.7%**	**14th**
Doctors to population ratio[5]	**2.3**	**3.27**	**35th**
Life expectancy at birth (years)[5]	**78.3**	**80.6**	**29th**

Percentage of daily smokers aged 15+[5]	**26.5%**	**21.81%**	**3rd**
Obesity rate (BMI≥30) (2017)[5]	**20.0%**	**17%**	**25th**
Caesarean section among all births[5]	**53%**	**32%**	**1st**
Number of hospital beds per 10,000 population[5]	**27.3**	**51.4**	**22nd**
Number of physicians per 100,000 population[5]	**181**	**343**	**24th**
Number of dentists per 100,000 population[5]	**33**	**71**	**20th**
Number of nurses per 100,000 population[5]	**257**	**1,098**	**22nd**
Number of pharmacists per 100,000 population[5]	**35**	**89**	**23rd**
Share of out-of-pocket expenses[5]	**16.5%**	**20.3%**	**16th**
Antibiotic consumption per 1,000 population, defined daily dose (DDD)[5]	**39.8**	**20.9**	**1st**
Average length of stay in hospitals, days[5]	**4.0**	**8.2**	**37th**

Medication

As measured in defined daily doses per 1,000 inhabitants per day Turkey had a high rate of consumption of antibiotics in 2015 with a rate of 38.8, double that of the United Kingdom.[6]

Medical tourism

There is a substantial medical tourism business in Turkey, with almost 178 thousand tourists visiting for health purposes in the first six months of 2018. 67% used private hospital, 24% public hospitals and 9% university hospitals. The Regulation on International Health Tourism and Tourist Health came into force on 13 July 2017. It only applies to those coming specifically for treatment.[7]

Private healthcare

Turkey has a large private healthcare sector, in addition to its public health services. These private health services often offer shorter waiting lists and higher quality services. Most banks and insurance companies offer health plans, and contract with certain hospitals and doctors.[4]

The Turkish healthcare system was formerly dominated by a centralized state system run by the Ministry of Health. In 2003 the governing Justice and Development Party introduced a sweeping health reform program aimed at increasing the ratio of private to state health provision and making healthcare available to a larger share of the population. Information from the Turkish Statistical Institute states that 76.3 billion liras are being spent on healthcare annually, with 79.6% of funding coming from the Social Security Institute and most of the remainder (15.4%) coming from out-of-pocket payments.[8] There are 27.954 medical institutions, 1.7 doctor for every 1000 people[9] and 2.54 beds for 1000 people.

Turkey previously had a scheme called green card (Yeşil Kart), which was developed in order to help low-income social group to get medical help. Spending on this system were equal to 40 billion TL in 2010. Due to this fact, the system was reformed in 2011 and the number of people who could benefit from this system was reduced. Following the 2012 Universal Health Insurance Law, the Green Card system was abolished.[10][11]

Finance

Turkey had the lowest expenditure on healthcare in Europe in 2015 - 6.4% of Gross domestic product.[12]

Total health spending according to the Turkish Statistical Institute data has exceeded 201 billion pounds in 2019.[13]

Yorum

Türkiye'deki sağlık bakımı: uluslararası sisteme 2003 yılında geçildiği ifade edilse bile, 1970yılında yapılanma oluşmuştur. Daha önceleri, 1060 yılından itibaren tüm halkın sağlık yaklaşımları Devlet yapısı altında oluşturulmuş, özellikle ücretsiz bakımların olması da bilinen bir durumdur.

Halen sağlık sigortasının %5 oranında alındığı belirtilmektedir. Kamu sektörü %75.2 olarak karşılamaktadır. OECD ülkeleri arasında en düşün %6.5, ortalamadan bile düşük olduğu ifade edilmektedir

Ortalama yaş 30 iken, Avrupa ortalaması ise 43,9 yaştır. Yaşam beklentisi Türkiye'de 78,5 iken Avrupa'da 81 yıldır.

Şişmanlık oranı %29.5 iken Avrupa oranına göre oldukça yüksektir.

Halk memnuniyeti: Halkın memnuniyet oranı 2003 yılında %39.5 iken, 2011 yılında bu oran 75.9'a yükselmiştir.

Sigorta ödemeleri: Sigorta özel ücret farkı olduğunda ödemiyor, bunun dışında hemen her ödemeye yapmakta veya katkı sağlamaktadır.

Avrupa Ülkeleri arasında belirgin farklılıklar olduğu gözlenmektedir: Bunların tartışması makalenin kapsamında değildir.

Neonatoloji kapsamında olarak bakıldığında:

- Sezaryen oranı %53'e karşılık, %32 olmaktadır. Evde doğum sistematiği ile yapılanması boyutu Ülkemizde yoktur. Burada bir ekip gelip, doğumu evde yaptırmaktadırlar.
- Hastanede kalım süresi, Ülkemizde 4 gün iken, bunun iki katından fazla olması, 8.2 gün olması nedeniyle ücret ve yapılanmayı düşürmek amacı ile evde doğum da gündeme gelmektedir.
- Ücretlendirme 665 dolar iken, Avrupa'da 3,223dolar olması ile devletin de %71,7 öderken, Ülkemizde ise %75,2 ödemesi nedeniyle, bir bakıma özel oldu ücreti ülkemse %25 altındadır.

NOT: Devlet farklı yapılanma, Hastane doğumlarında kısıntıya gitmektedir. Bunun ücret dışında da olumlu yanları olduğu dikkate alınmalı, yapılan hatalı olarak görülmemelidir.

Sağlık Turizmi: Yılda 500bin kişi ülkemizde tedavi için gelmektedir. %25 Devlet hastaneleri iken, çoğunluk özel hastaneleri tercih etmektedirler.

NEONATOLOJİ AÇISINDAN: Ülkemizde yenidoğan dönemine özel önem verilmesi ile her bir yerleşim yerinde daha önce Doğumhaneler ayrı olarak yapılırken, şimdi bunlara ek olarak Yenidoğan Üniteleri yapılmış ve Neonatoloji uzmanları sorumluluğuna verilmiştir.

Health in Turkey, Wikipedia[8]

The healthcare system in Turkey has improved in terms of health status especially after implementing the Health Transformation Program (HP) in 2003.[1] "Health for All" was the slogan for this transformation, and HP aimed to provide and finance health care efficiently, effectively, and equitably.[2] By covering most of the population, the General Health Insurance Scheme is financed by employers, employees, and government contributions through the Social Security Institution.[1] Even though HP aimed to be equitable, after 18 years of implementation, there are still disparities between the regions in Turkey. While the under-5 mortality rate in Western Marmara is 7.9, the under-5 mortality rate in Southeastern Asia is two times higher than Western Marmara, with the rate of 16.3 in 2021.[3]

In 2022, the population of Turkey calculated at more than 85 million by showing the trend in the population of old people increasing.[4] The causes of the changes between population pyramids in 2007 and 2022 are that the fertility rate decreased from 2.16 to 1.62[4][5] and the life expectancy reached 78.3 years between 2018 and 2020 in Turkey.[6]

The Human Rights Measurement Initiative[7] finds that Turkey is fulfilling 81.6% of what it should be fulfilling for the right to health based on its level of income.[8] When looking at the right to health with respect to children, Turkey achieves 95.5% of what is expected based on its current income.[8] In regards to the right to health

amongst the adult population, the country achieves only 92.0% of what is expected based on the nation's level of income.[8] Turkey falls into the "very bad" category when evaluating the right to reproductive health because the nation is fulfilling only 57.3% of what the nation is expected to achieve based on the resources (income) it has available.[8]

Turkish health system

Health services in Turkey are controlled by the Ministry of Health through a centralized state system. In 2003, the government introduced a comprehensive health reform program aimed at increasing the budget rate allocated to healthcare services and ensuring that a large part of the population is healthy. The Turkish Statistical Institute announced that it had spent 76.3 billion TL in health services in 2012; the Social Security Institution covered 79.6% of the service fees while the remaining 15.4% were paid directly by the patients."[9] According to 2013 figures, there are 30,116 health institutions in Turkey and per one doctor there are an average of 573 patients. In addition, the number of beds per 1000 people is 2.64.[10] Life expectancy in Turkey is 75.6 years for males and 81.3 years for females, and the life expectancy of the total population is 78.3 years.[6] The three most common causes of mortality in the country are cardiovascular diseases (35.4%), cancer (15.2%), respiratory diseases (13.5%).[11]

Healthcare in Turkey is majorly provided by Ministry of Health and some private health institutions.[12]

Primary healthcare system

The Turkish Public Health Association is accountable for the primary healthcare delivery in Turkey.[12]

Services[13] that are managed, developed and supervised by the Public Health Association are (health related units):

Primary Health Care Services

- Supervising the Family Medicine Unit (which consists of a Family Physician and a health personnel) and General Practitioners
- Immigration Healthcare Services

Communicable Diseases Control Programmes

- Early warning-response field epidemiology unit
- Communicable Diseases Unit
- Preventable diseases -Vaccination Unit
- Vector-borne and Zoonotic Diseases Unit
- Tuberculosis Unit
- Microbiology Laboratories Unit

Non-communicable Diseases Programmes and Cancer

- Tobacco and other addictive substances campaign Unit
- Cancer Unit
- Mental Health Programmes Unit
- Obesity, Diabetes, Other Metabolic Diseases Unit
- Chronic Diseases, Elderly and Disabled Unit
- Women and Reproductive Health unit
- Child and Adolescent Health Unit

Occupational Safety and Environmental Health Unit

Public Health Laboratory

Maternal mortality ratio

According to the WHO data between the years 2000 to 2017, Maternal mortality ratio (MMR) in Turkey has decreased from 42 to 17 in 17 years.[14] In 2010, Turkey was nearly on par with some of the other OECD countries such as South Korea and Hungary and had a lower maternal mortality ratio than the United States.[15]

	2000	2005	2010	2015	2017
MMR(Per 100,000 live births)	42	33	24	19	17

Under-five Mortality Rate (U5MR)

Turkey's U5MR in 2021 was reduced by 88% over 1990 levels, while in the rest of the world the total reduction was %59 between 1990 and 2021.[16] Even though Turkey has accomplished to reduce U5MR, it has always been higher than the Europe and Central Asia averages between 1990 and 2021.[16]

	1990	1995	2000	2005	2010	2015	2021
U5MR (per 1000 live births)	74	54	38	26	18	13	9

s

The top 5 causes of death are cardiovascular diseases (35.4%), cancer (15.2%), respiratory diseases (13.5%), endocrine and nutritional diseases (4.5%), and others (13%).[11] When the diseases causing death are examined on a gender basis; deaths from circulatory and endocrine diseases were found mostly in women and deaths from cancers and external causes were seen in men.[3]

YEARS (%)	cardiovascular system diseases	benign and malignant tumors	respiratory system diseases	endocrine, nutrition and metabolism related diseases	COVID-19	nervous system and sensory organs diseases
2021	33.5	14.0	13.4	4.2	11.5	3.3
2022	35.4	15.2	14.4	4.5	4.4	3.6

NCDs already account for over 89 percent of all mortality in Turkey.[17]

Top ten causes of deaths in 2019[17] from the most causes to the least are:

- Ischemic heart disease
- Stroke
- Lung cancer
- COPD
- Alzheimer's disease
- Diabetes
- Chronic kidney disease
- Hypertensive heart disease
- Lower respiratory infections
- Colorectal cancer

However, combining death causes with disability causes is changing the top ten list and, it includes low back pain, neonatal disorders, depressive disorders, headache disorders, and gynecological diseases.

The risk factors the drive most death and disability in Turkey are tobacco use, high body-mass index and high blood pressure.[17] WHO estimates that 42% of men are tobacco smokers.[18]

"Multisectoral action plan of Turkey for non-communicable diseases 2017–2025"[19] has been established by the Turkish Ministry of Health in order to halt and manage the NCDs in Turkey. The action plan[19] is coordinated with the Sustainable Development Goals.

Obesity and Dietary Behaviors

One of the risk factors that causes death and disability is a high body-mass index, which increased the DALYs (per 100.000) +453.9 between 2009 and 2019 in Turkey. The other risk factors that are on the top ten list, many of them related to eating behaviors.[20] Turkey has the highest rate of obesity in the WHO European Region; according to the European Obesity Report 2022 by WHO, more than 65% of adults are overweight or obese in Turkey.[21] Further, obesity in females (39.1%) is higher than in males (24.6%).[22]

The increased prevalence of obesity in Turkey is attributed to the changes in dietary behaviors. Turkish people eat fewer grains, bread, vegetables, and fruits than before. This causes an increase in fat intake and energy percentage from fats and a decrease in vitamin C intake. Although the energy and macronutrient intakes are within the recommended ranges (carbohydrates: 50%, protein: 15%, and fat: 35%),[22] it is seen that the diet of Turkish people has shifted to a Western-type diet in terms of micronutrients and food groups.[23]

Additionally, one of the determinants of obesity is urbanization in Turkey due to sedentary lifestyle in the cities, availability of public transportation, working more at office jobs, and changes in social and economic structure. Migrating to big cities is popular and causes high unemployment rates, which might also cause less physical activity.[24][25] The other social determinants of obesity are being married and having a lower educational level

in Turkey.[26] A lack of knowledge about health and the health consequences contribute to the high percentage of excessive weight.[25]
Obesity and being overweight is higher among women for several reasons. A majority of women do not have jobs outside of the home and lead more sedentary lifestyles as a result. Housework is often the only source of physical activity for women, as there is no prior tradition of women participating in sports.[25]
"Turkey Health Nutrition and Active Life Program (2014–2017)" is implemented by the Ministry of Health in Turkey in order to prevent obesity and reduce obesity-related diseases (cardiovascular diseases, diabetes, some types of cancer, hypertension, and musculoskeletal diseases) by encouraging people to have adequate and balanced nutrition and regular physical activity habits.[27] In 2019, the Ministry of Health in Turkey extended the program and introduced the "Adult and Childhood Obesity Prevention and Physical Activity Action Plan (2019-2023). One of the actions in the program addresses the decreased purchasing power problem in Turkey by minimizing inflation on healthy products such as fish, milk, fruit, and vegetables and taking actions to increase purchasing power.[28]
In 2022 half of children ate fruit every day, and a third ate vegetables every day.[29] Placing fruit and vegetables outside shops attracts customers.[30] In 2022 a lawsuit was started claiming that the ban on vegan cheese was unconstitutional.[31] Suger beet is subsidized.[32]

Diabetes

Diabetes causes 2% of total deaths in all ages in Turkey.[33] Furthermore many more Turks die from Diabetic Kidney disease, a complication of Diabetes and non-diabetic High blood sugar, and some say that the consequences of Diabetes could cause up to 20% of all deaths in Turkey.
In 2016 it was estimated that 13.2% of the population had diabetes and there is an increasing trend in the prevalence of diabetes.[33] The main cause of this could be the fact that over Nearly 2 in 3 Turks are overweight and that 1 in 3 are obese.
Diabetes has been described as "one of the top priorities" for the Turkish government.[34] An operational action plan for diabetes, overweight and obesity exists as a national response to the diabetes.[33]

Air pollution and climate change

Air pollution in Turkey is estimated to be a cause of 8% of deaths in 2019.[35] Coal is a major contributor to air pollution, and damages health across the nation, being burnt even in homes and cities.[36] It is estimated that a phase out of coal power in Turkey by 2030 instead of by the 2050s would save over 100 thousand lives.[37] Climate change in Turkey may impact health, for example due to increased heatwaves.[38][39]

Vaccine-preventable diseases

Vaccines that are on the existing immunization schedule of the government are free of charge.
According to the recent 'WHO vaccine-preventable diseases: monitoring system' reported cases for Diphtheria were 0, Measles were 9, Rubella were 7, Mumps were 544 and Tetanus(total) were 16 cases in 2016.[40]

Immunization schedule [40]

- HepB_pediatric: birth;1, 6 months
- BCG: 2 months
- DTaPHibIPV: 2, 4, 6, 18 months
- Pneumo_conj: 2, 4, 6, 12 months
- MMR: 12 months, 6 years
- TdaPIPV: 6 years
- OPV: 6, 18 months
- Td: 14 years
- HepA_pediatric: 18, 24 months
- Varicella: 12 months
- Influenza_Adult: >=65 years
- Influenza - Pediatric: 6 months

HIV/AIDS in Turkey

Between 2006 and 2017, new HIV infections increased by 465%.[41] AIDS is a disease that is not decreasing as in much of the rest of the world. Analysis of nearly 7000 cases reveal data about HIV in Turkey.[42] AIDS in Turkey is often described as a "Gay disease", "African disease", or "Natasha disease",[43] so people tend to hide their

illness. "According to the United Nations HIV / AIDS Theme Group's 2002 HIV / AIDS Situation Analysis report in Turkey, between 7,000 and 14,000 people have been infected with AIDS since the beginning of the pandemic. Figures released by the (Ministry of Health) in June 2002 show that a total of 1,429 HIV / AIDS cases had been reported since 1985."[44] Due to problems in the registration and notification system, obtaining reliable numerical information about AIDS cases is very difficult in Turkey.[45]
"The disease is seen in 20-45 groups. It is estimated that approximately 2,000 people have been treated with this disease in Turkey. Marmara region where the most case report is made to the current. These are followed by Ankara, Izmir, Antalya, Mersin, Adana and Bursa respectively. Foreign nationals who make up about 16 percent of cases are from Ukraine, Moldova and Romania."[46]

2009 swine flu pandemic in Turkey

The **2009 flu pandemic** was a global outbreak of a new strain of influenza A virus subtype H1N1, first identified in April 2009, termed **Pandemic H1N1/09 virus** by the World Health Organization (WHO)[47] and colloquially called **swine flu**. The outbreak was first observed in Mexico,[48] and quickly spread globally. On 11 June 2009, WHO declared the outbreak to be a pandemic.[49][50] The overwhelming majority of patients experience mild symptoms",[49] but some persons are in higher risk groups, such as those with asthma, diabetes,[51][52] obesity, heart disease, or who are pregnant or have a weakened immune system.[53] In the rare severe cases, around 3–5 days after symptoms manifest, the sufferer's condition declines quickly, often to the point respiratory failure.[54]
The virus reached **Turkey** in May 2009. A U.S. citizen, flying from the United States via Amsterdam was found to be suffering from the swine flu after arriving at Istanbul's Atatürk International Airport.[55] Turkey is the 17th country in Europe and the 36th country in the world to report an incident of swine flu.
The Turkish Government has taken measures at the international airports, using thermal imaging cameras to check passengers coming from international destinations.[56]
The first case of person-to-person transmission within Turkey was announced on 26 July 2009.
On 2 November, the Turkish Health Ministry began administering vaccines against H1N1 influenza, starting with health workers.[57]
After a slow start, the virus spread rapidly in Turkey and the number of cases reached 12,316. First death confirmed on 24 October and death toll reached 627.[58]

COVID-19 pandemic in Turkey

The **COVID-19 pandemic in Turkey** is part of the ongoing COVID-19 pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was confirmed to have reached Turkey on 11 March 2020, after a man who had returned to Turkey from Europe, tested positive.[59] The first death due to COVID-19 in the country occurred on 15 March 2020 and by 1 April, it was confirmed that COVID-19 had spread all over Turkey.[60] On 14 April 2020, the head of the Turkish Ministry of Health Fahrettin Koca announced that the spread of the virus in Turkey has reached its peak in the fourth week and started to slow down.[61] The disease is exacerbated by air pollution,[62] for example from burning coal in Turkey for residential heating.[63]
As of 22 July 2020, the total number of confirmed cases in the country is over 222,400. Among these cases, 205,200 have recovered and 5,500 have died.[64] On 18 April 2020, the total number of positive test results surpassed that of Iran, making it the highest in the Middle East.[65][66] Turkey also surpassed China in confirmed total cases on 20 April 2020.[67] The rapid increase of the confirmed cases in Turkey did not overburden the public healthcare system,[68] and the preliminary case-fatality rate remained lower compared to many European countries.[69][70] Discussions mainly attributed these to the country's relatively young population and high number of available intensive care units.[71][72]

Yorum

Türkiye'de Sağlık Yapılanması: Tarihsel bir süreç olarak bakılmalıdır.
Osmanlı Boyutunda Kayseri Gevher Nesibe dahil ve diğer Hekimlik eğitim verilen yerlerde, sadece belirli kesim değil, tüm halka da eş zamanlı hizmet verildiği gözlenmektedir.
Cumhuriyet Döneminde kısıtlı imkanlarla askeri/cerrahi boyut olmak üzere, genel kamu hizmeti ağırlıklı olmuştur. 1950 yılından sonra halk bütünleştirmesi yaşanmaya çalışılmış,

Sıtma Savaş, Tüberküloz mücadelesinde Dünyada ilk sırada yer alarak başarılı olmuştur. 1960 Etik Deontoloji Nizamnamesi ile de bir öncü karakter kazanmıştır.
1970 yıllarınsa Sosyalizasyon kapsamına girmesine karşın bazı sorunlarda görülmüştür. Gerçek ile yazılardaki uyumsuzluk belirgindir. Örneğin, DPT aşılaması tek dozda iken, rakamlarda, biri 20, diğeri 4o ve 60 bin doz yapıldığı tutanaklara geçirilmiş, ama yapılan net bilinmemektedir. Örneğin, 1999 Düzce depreminde 60 bin doz Tito/Tetanos aşısı gönderildiği ifade edilmiş, ama oradaki doktorların eline ulaşmamıştır. Ayrıca tifo aşısının etkin olması tartışması da belirgin iken, bu şekilde bir durum TV yayınlarında resmi olarak yapılmıştır.

Türkiye'de aşı aleyhine kampanyalar yanında, sağlıkta kabul edilemez görüşlerin sanki tıp bilimi şeklinde sunulduğu da gözlenmektedir. Bu durum resmi olarak iletildiğinde, onların Profesör olması nedeniyle serbest söz hakkı olduğundan karışılamaz, ama siz bir TV programında onları tenkit edebilirsiniz denilmiştir.

Yayında %81.6 kişinin memnun olduğu, ayrıca verilerin iyi olduğu vurgusu da yapılmaktadır.

Makalede yayınlarda sunulan verilen karşılaştırma yapılmadığı izlenmiştir: Bu nedenle veriler yorumlanmayacak, sadece sunulacaktır.

2003 yılında bilişim sistemine geçmiş, her bireyin verileri e-Devlet kanalı ile erişime açılmıştır.

%15.4 oranında özel sektör sağlık sisteminin yükünü çekmektedir.

Sağlık yapılanmaları: Türkiye'deki sağlık yapılanmaları aşağıdaki şekildedir

- Primer, İlk basamak sağlık bakım yapılanması: Aile hekimliği olarak her bireyin hekiminin olması, Göçmenlik Bürosu, Bulaşıcı hastalıklardan Korunma Programları bu kapsamda sayılmaktadır.
  Ayrıca bazı hastalık ve programlarda bu kapsam altındadır. Kadın sağlığı ve Üreme programı ile çocuk ve adolesan sağlığı da bu yapı içindedir.
  Çevre Sağlığı ve İş hekimliği de bu yapıdadır.
  Toplum Sağlığı Laboratuvarları

Genel mortalite nedenleri; Kardiyo-vasküler nedenler %33,5, Kansere bağlı ölümler % 15,2, solunum problemleri ile ölümler %14.4 tutmaktadır.

NEONATOLOJİK AÇIDAN: Perinatoloji ve Neonatoloji Bilim Dalının etkinleşmesi ile 2000-2017 yılları arasında anne mortalite oranı 42'den 17'e inmiştir. Mortalite oranı 1990-2021 yıl içinde de 74'den 9'a inmiştir. Bu rakam içinde konjenital anomalilerden ölümlerde vardır. Bu oran birçok ülkede çıkarılmaktadır, %2,5 ile 7 arasında bir rakam etkileşim olmaktadır.

Obesite önemli sorun olarak görülmektedir: Nüfusun %65 ve üstü obezdir. Kadınlar 5 puan daha fazla obezdirler.

Toplumun %13.2'si diyabetiktir ve ölümlerin %2'sinden sorumludur.

Hava kirliliği ölümlerin %8'inden sorumludur.

Aşılama yaygın olduğu için, aşı hastalıklarının görülme oranı nadirdir.

HIV gibi hastalıklar dışardan gelip, yayılmasına neden olmaktadır.

Domuz Gribi v COVİD-19 Hastalığı, Devlet hem aşı üretimi, aşının yaygınlaşması ve genel izolasyon eylemleri ve malzeme üretimi ile kontrolde başarılı olmuştur.

Hekimlik Yaklaşımları

İnsan sağlığının sürdürebilmesi için, belirli bir tıbbi yaklaşım yapması gerekir. Beslenme, fizik aktivite, zihinsel faaliyet ve sosyal yaşamında da bir sakin, barış içinde, insanlıkta bulunmalıdır. Sevgi bile sağlıklı olanda izlenen bir durum olmakta, ağrı ve sızısı olan kişi mutlu olamamaktadır.

Bu açıdan yaklaşımlar temelde: 1) Semptom, 2) Bulgular, 3) Hastalık, tanı, tedavi, 4) Bireyin yapısında göre alım, uygulama ve izlem, sonuç, 5) Olgu sunumu bilime katkı gibi aşamalardan söz edilebilir.
Tümü bireye özgü olmalıdır, innovasyon, buluş ve karar doğrudan birey özelliklidir. Bir bakıma terzilik yapılarak, bireye uyarlanmalı, onun rızasına uygun olmalıdır. Kamu vicdanı, ortak akıl ve kurala göre yaklaşım yapmak, kabul edilemez ötesinde suç kapsamında da olabilir. Çünkü doğrudan birey hakkı ve kişiliğine aykırıdır.

Personalized medicine, Wikipedia[9]

Personalized medicine, also referred to as **precision medicine**, is a medical model that separates people into different groups—with medical decisions, practices, interventions and/or products being tailored to the individual patient based on their predicted response or risk of disease.[1] The terms personalized medicine, precision medicine, stratified medicine and P4 medicine are used interchangeably to describe this concept[1][2] though some authors and organisations use these expressions separately to indicate particular nuances.[2]
While the tailoring of treatment to patients dates back at least to the time of Hippocrates,[3] the term has risen in usage in recent years given the growth of new diagnostic and informatics approaches that provide an understanding of the molecular basis of disease, particularly genomics. This provides a clear evidence base on which to stratify (group) related patients.[1][4][5]
Among the 14 Grand Challenges for Engineering, an initiative sponsored by National Academy of Engineering (NAE), personalized medicine has been identified as a key and prospective approach to "achieve optimal individual health decisions", therefore overcoming the challenge to "Engineer better medicines".[6][7]

Development of concept

In personalised medicine, diagnostic testing is often employed for selecting appropriate and optimal therapies based on the context of a patient's genetic content or other molecular or cellular analysis.[8] The use of genetic information has played a major role in certain aspects of personalized medicine (e.g. pharmacogenomics), and the term was first coined in the context of genetics, though it has since broadened to encompass all sorts of personalization measures,[8] including the use of proteomics,[9] imaging analysis, nanoparticle-based theranostics,[10] among others.

Relationship to personalized medicine

Precision medicine (**PM**) is a medical model that proposes the customization of healthcare, with medical decisions, treatments, practices, or products being tailored to a subgroup of patients, instead of a one-drug-fits-all model.[11][12] In precision medicine, diagnostic testing is often employed for selecting appropriate and optimal therapies based on the context of a patient's genetic content or other molecular or cellular analysis.[13] Tools employed in precision medicine can include molecular diagnostics, imaging, and analytics.[14][15] In explaining the distinction from a similar common term of *personalized medicine*, the National Research Council explains:
Precision Medicine refers to the tailoring of medical treatment to the individual characteristics of each patient. It does not literally mean the creation of drugs or medical devices that are unique to a patient, but rather the

ability to classify individuals into subpopulations that differ in their susceptibility to a particular disease, in the biology or prognosis of those diseases they may develop, or in their response to a specific treatment. Preventive or therapeutic interventions can then be concentrated on those who will benefit, sparing expense and side effects for those who will not. Although the term 'personalized medicine' is also used to convey this meaning, that term is sometimes misinterpreted as implying that unique treatments can be designed for each individual.[14]

On the other hand, the use of the term "precision medicine" can extend beyond treatment selection to also cover creating unique medical products for particular individuals—for example, "...patient-specific tissue or organs to tailor treatments for different people."[16] Hence, the term in practice has so much overlap with "personalized medicine" that they are often used interchangeably.[17]

Background

Basics

Every person has a unique variation of the human genome.[18] Although most of the variation between individuals has no effect on health, an individual's health stems from genetic variation with behaviors and influences from the environment.[19][20]

Modern advances in personalized medicine rely on technology that confirms a patient's fundamental biology, DNA, RNA, or protein, which ultimately leads to confirming disease. For example, personalised techniques such as genome sequencing can reveal mutations in DNA that influence diseases ranging from cystic fibrosis to cancer. Another method, called RNA-seq, can show which RNA molecules are involved with specific diseases. Unlike DNA, levels of RNA can change in response to the environment. Therefore, sequencing RNA can provide a broader understanding of a person's state of health. Recent studies have linked genetic differences between individuals to RNA expression,[21] translation,[22] and protein levels.[23]

The concepts of personalised medicine can be applied to new and transformative approaches to health care. Personalised health care is based on the dynamics of systems biology and uses predictive tools to evaluate health risks and to design personalised health plans to help patients mitigate risks, prevent disease and to treat it with precision when it occurs. The concepts of personalised health care are receiving increasing acceptance with the Veterans Administration committing to personalised, proactive patient driven care for all veterans.[24] In some instances personalised health care can be tailored to the markup of the disease causing agent instead of the patient's genetic markup; examples are drug resistant bacteria or viruses.[25]

Precision medicine often involves the application of panomic analysis and systems biology to analyze the cause of an individual patient's disease at the molecular level and then to utilize targeted treatments (possibly in combination) to address that individual patient's disease process. The patient's response is then tracked as closely as possible, often using surrogate measures such as tumor load (versus true outcomes, such as five-year survival rate), and the treatment finely adapted to the patient's response.[26][27] The branch of precision medicine that addresses cancer is referred to as "precision oncology".[28][29] The field of precision medicine that is related to psychiatric disorders and mental health is called "precision psychiatry."[30][31]

Inter-personal difference of molecular pathology is diverse, so as inter-personal difference in the exposome, which influence disease processes through the interactome within the tissue microenvironment, differentially from person to person. As the theoretical basis of precision medicine, the "unique disease principle"[32] emerged to embrace the ubiquitous phenomenon of heterogeneity of disease etiology and pathogenesis. The unique disease principle was first described in neoplastic diseases as the unique tumor principle.[33] As the exposome is a common concept of epidemiology, precision medicine is intertwined with molecular pathological epidemiology, which is capable of identifying potential biomarkers for precision medicine.[34]

Method

In order for physicians to know if a mutation is connected to a certain disease, researchers often do a study called a "genome-wide association study" (GWAS). A GWAS study will look at one disease, and then sequence the genome of many patients with that particular disease to look for shared mutations in the genome. Mutations that are determined to be related to a disease by a GWAS study can then be used to diagnose that disease in future patients, by looking at their genome sequence to find that same mutation. The first GWAS, conducted in 2005, studied patients with age-related macular degeneration (ARMD).[35] It found two different mutations, each containing only a variation in only one nucleotide (called single nucleotide polymorphisms, or SNPs), which

were associated with ARMD. GWAS studies like this have been very successful in identifying common genetic variations associated with diseases. As of early 2014, over 1,300 GWAS studies have been completed.[36]

Disease risk assessment

Multiple genes collectively influence the likelihood of developing many common and complex diseases.[19] Personalised medicine can also be used to predict a person's risk for a particular disease, based on one or even several genes. This approach uses the same sequencing technology to focus on the evaluation of disease risk, allowing the physician to initiate preventive treatment before the disease presents itself in their patient. For example, if it is found that a DNA mutation increases a person's risk of developing Type 2 Diabetes, this individual can begin lifestyle changes that will lessen their chances of developing Type 2 Diabetes later in life.[*citation needed*]

Practice

The ability to provide precision medicine to patients in routine clinical settings depends on the availability of molecular profiling tests, e.g. individual germline DNA sequencing.[37] While precision medicine currently individualizes treatment mainly on the basis of genomic tests (e.g. Oncotype DX[38]), several promising technology modalities are being developed, from techniques combining spectrometry and computational power to real-time imaging of drug effects in the body.[39] Many different aspects of precision medicine are tested in research settings (e.g., proteome, microbiome), but in routine practice not all available inputs are used. The ability to practice precision medicine is also dependent on the knowledge bases available to assist clinicians in taking action based on test results.[40][41][42] Early studies applying omics-based precision medicine to cohorts of individuals with undiagnosed disease has yielded a diagnosis rate ~35% with ~1 in 5 of newly diagnosed receiving recommendations regarding changes in therapy.[43] It has been suggested that until pharmacogenetics becomes further developed and able to predict individual treatment responses, the N-of-1 trials are the best method of identifying patients responding to treatments.[44][45]

On the treatment side, PM can involve the use of customized medical products such drug cocktails produced by pharmacy compounding[46] or customized devices.[47] It can also prevent harmful drug interactions, increase overall efficiency when prescribing medications, and reduce costs associated with healthcare.[48]

The question of who benefits from publicly funded genomics is an important public health consideration, and attention is needed to ensure that implementation of genomic medicine does not further entrench social-equity concerns.[49]

Artificial intelligence in precision medicine

Artificial intelligence is a providing paradigm shift toward precision medicine.[50] Machine learning algorithms are used for genomic sequence and to analyze and draw inferences from the vast amounts of data patients and healthcare institutions recorded in every moment.[51] AI techniques are used in precision cardiovascular medicine to understand genotypes and phenotypes in existing diseases, improve the quality of patient care, enable cost-effectiveness, and reduce readmission and mortality rates.[52] A 2021 paper reported that machine learning was able to predict the outcomes of Phase III clinical trials (for treatment of prostate cancer) with 76% accuracy.[53] This suggests that clinical trial data could provide a practical source for machine learning-based tools for precision medicine.

Precision medicine may be susceptible to subtle forms of algorithmic bias. For example, the presence of multiple entry fields with values entered by multiple observers can create distortions in the ways data is understood and interpreted.[54] A 2020 paper showed that training machine learning models in a population-specific fashion (i.e. training models specifically for Black cancer patients) can yield significantly superior performance than population-agnostic models.[55]

Precision Medicine Initiative

In his 2015 State of the Union address, U.S. President Barack Obama stated his intention to fund an amount of $215 million[56] to the "Precision Medicine Initiative" of the United States National Institutes of Health.[57] A short-term goal of the Precision Medicine Initiative was to expand cancer genomics to develop better prevention and treatment methods.[58] In the long term, the Precision Medicine Initiative aimed to build a comprehensive scientific knowledge base by creating a national network of scientists and embarking on a national cohort study of one million Americans to expand our understanding of health and disease.[59] The Mission Statement of the Precision Medicine Initiative read: "To enable a new era of medicine through research, technology, and policies that empower patients, researchers, and providers to work together toward

development of individualized treatments".[60] In 2016 this initiative was renamed "All of Us" and an initial pilot project had enrolled about 10,000 people by January 2018.[61]

Benefits of precision medicine

Precision medicine helps health care providers better understand the many things—including environment, lifestyle, and heredity—that play a role in a patient's health, disease, or condition. This information lets them more accurately predict which treatments will be most effective and safe, or possibly how to prevent the illness from starting in the first place. In addition, benefits are to:[*citation needed*]

- shift the emphasis in medicine from reaction to prevention
- predict susceptibility to disease
- improve disease detection
- preempt disease progression
- customize disease-prevention strategies
- prescribe more effective drugs
- avoid prescribing drugs with predictable negative side effects
- reduce the time, cost, and failure rate of pharmaceutical clinical trials
- eliminate trial-and-error inefficiencies that inflate health care costs and undermine patient care

Applications

Advances in personalised medicine will create a more unified treatment approach specific to the individual and their genome. Personalised medicine may provide better diagnoses with earlier intervention, and more efficient drug development and more targeted therapies.[62]

Diagnosis and intervention

Having the ability to look at a patient on an individual basis will allow for a more accurate diagnosis and specific treatment plan. Genotyping is the process of obtaining an individual's DNA sequence by using biological assays.[63] By having a detailed account of an individual's DNA sequence, their genome can then be compared to a reference genome, like that of the Human Genome Project, to assess the existing genetic variations that can account for possible diseases. A number of private companies, such as 23andMe, Navigenics, and Illumina, have created Direct-to-Consumer genome sequencing accessible to the public.[18] Having this information from individuals can then be applied to effectively treat them. An individual's genetic make-up also plays a large role in how well they respond to a certain treatment, and therefore, knowing their genetic content can change the type of treatment they receive.

An aspect of this is pharmacogenomics, which uses an individual's genome to provide a more informed and tailored drug prescription.[64] Often, drugs are prescribed with the idea that it will work relatively the same for everyone, but in the application of drugs, there are a number of factors that must be considered. The detailed account of genetic information from the individual will help prevent adverse events, allow for appropriate dosages, and create maximum efficacy with drug prescriptions.[18] For instance, warfarin is the FDA approved oral anticoagulant commonly prescribed to patients with blood clots. Due to warfarin's significant interindividual variability in pharmacokinetics and pharmacodynamics, its rate of adverse events is among the highest of all commonly prescribed drugs.[6] However, with the discovery of polymorphic variants in CYP2C9 and VKORC1 genotypes, two genes that encode the individual anticoagulant response,[65][66] physicians can use patients' gene profile to prescribe optimum doses of warfarin to prevent side effects such as major bleeding and to allow sooner and better therapeutic efficacy.[6] The pharmacogenomic process for discovery of genetic variants that predict adverse events to a specific drug has been termed toxgnostics.[67]

An aspect of a theranostic platform applied to personalized medicine can be the use of diagnostic tests to guide therapy. The tests may involve medical imaging such as MRI contrast agents (T1 and T2 agents), fluorescent markers (organic dyes and inorganic quantum dots), and nuclear imaging agents (PET radiotracers or SPECT agents).[10][68] or in vitro lab test[69] including DNA sequencing[70] and often involve deep learning algorithms that weigh the result of testing for several biomarkers.[71]

In addition to specific treatment, personalised medicine can greatly aid the advancements of preventive care. For instance, many women are already being genotyped for certain mutations in the BRCA1 and BRCA2 gene if they are predisposed because of a family history of breast cancer or ovarian cancer.[72] As more causes of diseases are mapped out according to mutations that exist within a genome, the easier they can be identified

in an individual. Measures can then be taken to prevent a disease from developing. Even if mutations were found within a genome, having the details of their DNA can reduce the impact or delay the onset of certain diseases.[62] Having the genetic content of an individual will allow better guided decisions in determining the source of the disease and thus treating it or preventing its progression. This will be extremely useful for diseases like Alzheimer's or cancers that are thought to be linked to certain mutations in our DNA.[62]

A tool that is being used now to test efficacy and safety of a drug specific to a targeted patient group/sub-group is companion diagnostics. This technology is an assay that is developed during or after a drug is made available on the market and is helpful in enhancing the therapeutic treatment available based on the individual.[73] These companion diagnostics have incorporated the pharmacogenomic information related to the drug into their prescription label in an effort to assist in making the most optimal treatment decision possible for the patient.[73]

Drug development and usage

Having an individual's genomic information can be significant in the process of developing drugs as they await approval from the FDA for public use. Having a detailed account of an individual's genetic make-up can be a major asset in deciding if a patient can be chosen for inclusion or exclusion in the final stages of a clinical trial.[62] Being able to identify patients who will benefit most from a clinical trial will increase the safety of patients from adverse outcomes caused by the product in testing, and will allow smaller and faster trials that lead to lower overall costs.[74] In addition, drugs that are deemed ineffective for the larger population can gain approval by the FDA by using personal genomes to qualify the effectiveness and need for that specific drug or therapy even though it may only be needed by a small percentage of the population.,[62][75]

Physicians commonly use a trial and error strategy until they find the treatment therapy that is most effective for their patient.[62] With personalized medicine, these treatments can be more specifically tailored by predicting how an individual's body will respond and if the treatment will work based on their genome.[18] This has been summarized as "therapy with the right drug at the right dose in the right patient."[76] Such an approach would also be more cost-effective and accurate.[62] For instance, Tamoxifen used to be a drug commonly prescribed to women with ER+ breast cancer, but 65% of women initially taking it developed resistance. After research by people such as David Flockhart, it was discovered that women with certain mutation in their CYP2D6 gene, a gene that encodes the metabolizing enzyme, were not able to efficiently break down Tamoxifen, making it an ineffective treatment for them.[77] Women are now genotyped for these specific mutations to select the most effective treatment.

Screening for these mutations is carried out via high-throughput screening or phenotypic screening. Several drug discovery and pharmaceutical companies are currently utilizing these technologies to not only advance the study of personalised medicine, but also to amplify genetic research. Alternative multi-target approaches to the traditional approach of "forward" transfection library screening can entail reverse transfection or chemogenomics.[*citation needed*]

Pharmacy compounding is another application of personalised medicine. Though not necessarily using genetic information, the customized production of a drug whose various properties (e.g. dose level, ingredient selection, route of administration, etc.) are selected and crafted for an individual patient is accepted as an area of personalised medicine (in contrast to mass-produced unit doses or fixed-dose combinations). Computational and mathematical approaches for predicting drug interactions are also being developed. For example, phenotypic response surfaces model the relationships between drugs, their interactions, and an individual's biomarkers.[*citation needed*]

One active area of research is efficiently delivering personalized drugs generated from pharmacy compounding to the disease sites of the body.[7] For instance, researchers are trying to engineer nanocarriers that can precisely target the specific site by using real-time imaging and analyzing the pharmacodynamics of the drug delivery.[78] Several candidate nanocarriers are being investigated, such as iron oxide nanoparticles, quantum dots, carbon nanotubes, gold nanoparticles, and silica nanoparticles.[10] Alteration of surface chemistry allows these nanoparticles to be loaded with drugs, as well as to avoid the body's immune response, making nanoparticle-based theranostics possible.[7][10] Nanocarriers' targeting strategies are varied according to the disease. For example, if the disease is cancer, a common approach is to identify the biomarker expressed on the surface of cancer cells and to load its associated targeting vector onto nanocarrier to achieve recognition and binding; the size scale of the nanocarriers will also be engineered to reach the enhanced permeability and retention effect (EPR) in tumor targeting.[10] If the disease is localized in the specific organ, such as the kidney,

the surface of the nanocarriers can be coated with a certain ligand that binds to the receptors inside that organ to achieve organ-targeting drug delivery and avoid non-specific uptake.[79] Despite the great potential of this nanoparticle-based drug delivery system, the significant progress in the field is yet to be made, and the nanocarriers are still being investigated and modified to meet clinical standards.[10][78]

Theranostics

Theranostics is a personalized approach in nuclear medicine, using similar molecules for both imaging (diagnosis) and therapy.[80][81][82] The term is a portmanteau of "therapeutics" and "diagnostics". It is most commonly applied where radionuclides (either gamma or positron emitters) are attached to molecules for SPECT or PET imaging, or electron emitters for radiotherapy. One of the earliest examples is the use of radioactive iodine for treatment of people with prostate or thyroid cancer.[80] Other examples include radio-labelled anti-CD20 antibodies (e.g. Bexxar) for treating lymphoma, Radium-223 for treating bone metastases, Lutetium-177 DOTATATE for treating neuroendocrine tumors and Lutetium-177 PSMA for treating prostate cancer.[80] A commonly used reagent is fluorodeoxyglucose, using the isotope fluorine-18.[83]

Respiratory proteomics

Respiratory diseases affect humanity globally, with chronic lung diseases (e.g., asthma, chronic obstructive pulmonary disease, idiopathic pulmonary fibrosis, among others) and lung cancer causing extensive morbidity and mortality. These conditions are highly heterogeneous and require an early diagnosis. However, initial symptoms are nonspecific, and the clinical diagnosis is made late frequently. Over the last few years, personalized medicine has emerged as a medical care approach that uses novel technology [84] aiming to personalize treatments according to the particular patient's medical needs. In specific, proteomics is used to analyze a series of protein expressions, instead of a single biomarker.[85] Proteins control the body's biological activities including health and disease, so proteomics is helpful in early diagnosis. In the case of respiratory disease, proteomics analyzes several biological samples including serum, blood cells, bronchoalveolar lavage fluids (BAL), nasal lavage fluids (NLF), sputum, among others.[85] The identification and quantification of complete protein expression from these biological samples are conducted by mass spectrometry and advanced analytical techniques.[86] Respiratory proteomics has made significant progress in the development of personalized medicine for supporting health care in recent years. For example, in a study conducted by Lazzari et al. in 2012, the proteomics-based approach has made substantial improvement in identifying multiple biomarkers of lung cancer that can be used in tailoring personalized treatments for individual patients.[87] More and more studies have demonstrated the usefulness of proteomics to provide targeted therapies for respiratory disease.[85]

Cancer genomics

Over recent decades cancer research has discovered a great deal about the genetic variety of types of cancer that appear the same in traditional pathology. There has also been increasing awareness of tumour heterogeneity, or genetic diversity within a single tumour. Among other prospects, these discoveries raise the possibility of finding that drugs that have not given good results applied to a general population of cases may yet be successful for a proportion of cases with particular genetic profiles.

"Personalized Onco-genomics" is the application of personalized medicine to Cancer Genomics, or "oncogenomics". High-throughput sequencing methods are used to characterize genes associated with cancer to better understand disease pathology and improve drug development. Oncogenomics is one of the most promising branches of genomics, particularly because of its implications in drug therapy. Examples of this include:

- Trastuzumab (trade names Herclon, Herceptin) is a monoclonal antibody drug that interferes with the HER2/neu receptor. Its main use is to treat certain breast cancers. This drug is only used if a patient's cancer is tested for over-expression of the HER2/neu receptor. Two tissue-typing tests are used to screen patients for possible benefit from Herceptin treatment. The tissue tests are immunohistochemistry(IHC) and Fluorescence In Situ Hybridization(FISH)[88] Only Her2+ patients will be treated with Herceptin therapy (trastuzumab)[89]
- Tyrosine kinase inhibitors such as imatinib (marketed as Gleevec) have been developed to treat chronic myeloid leukemia (CML), in which the BCR-ABL fusion gene (the product of a reciprocal translocation between chromosome 9 and chromosome 22) is present in >95% of cases and produces hyperactivated abl-driven protein signaling. These medications specifically inhibit the Ableson tyrosine

kinase (ABL) protein and are thus a prime example of "**rational drug design**" based on knowledge of disease pathophysiology.[90]

- The FoundationOne CDx report produced by Foundation Medicine, which looks at genes in individual patients' tumor biopsies and recommends specific drugs
- High mutation burden is indicative of response to immunotherapy, and also specific patterns of mutations have been associated with previous exposure to cytotoxic cancer drugs.[91]

Population screening

Through the use of genomics (microarray), proteomics (tissue array), and imaging (fMRI, micro-CT) technologies, molecular-scale information about patients can be easily obtained. These so-called molecular biomarkers have proven powerful in disease prognosis, such as with cancer.[92][93][94] The main three areas of cancer prediction fall under cancer recurrence, cancer susceptibility and cancer survivability.[95] Combining molecular scale information with macro-scale clinical data, such as patients' tumor type and other risk factors, significantly improves prognosis.[95] Consequently, given the use of molecular biomarkers, especially genomics, cancer prognosis or prediction has become very effective, especially when screening a large population.[96] Essentially, population genomics screening can be used to identify people at risk for disease, which can assist in preventative efforts.[96]

Genetic data can be used to construct polygenic scores, which estimate traits such as disease risk by summing the estimated effects of individual variants discovered through a GWAS. These have been used for a wide variety of conditions, such as cancer, diabetes, and coronary artery disease.[97][98] Many genetic variants are associated with ancestry, and it remains a challenge to both generate accurate estimates and to decouple biologically relevant variants from those that are coincidentally associated. Estimates generated from one population do not usually transfer well to others, requiring sophisticated methods and more diverse and global data.[99][100] Most studies have used data from those with European ancestry, leading to calls for more equitable genomics practices to reduce health disparities.[101] Additionally, while polygenic scores have some predictive accuracy, their interpretations are limited to estimating an individual's percentile and translational research is needed for clinical use.[102]

Challenges

As personalised medicine is practiced more widely, a number of challenges arise. The current approaches to intellectual property rights, reimbursement policies, patient privacy, data biases and confidentiality as well as regulatory oversight will have to be redefined and restructured to accommodate the changes personalised medicine will bring to healthcare.[103] For instance, a survey performed in the UK concluded that 63% of UK adults are not comfortable with their personal data being used for the sake of utilizing AI in the medical field.[104] Furthermore, the analysis of acquired diagnostic data is a recent challenge of personalized medicine and its implementation.[40] For example, genetic data obtained from next-generation sequencing requires computer-intensive data processing prior to its analysis.[105] In the future, adequate tools will be required to accelerate the adoption of personalised medicine to further fields of medicine, which requires the interdisciplinary cooperation of experts from specific fields of research, such as medicine, clinical oncology, biology, and artificial intelligence.

Regulatory oversight

The FDA has already started to take initiatives to integrate personalised medicine into their regulatory policies. An FDA report in October 2013 entitled, "*Paving the Way for Personalized Medicine: FDA's role in a New Era of Medical Product Development*," in which they outlined steps they would have to take to integrate genetic and biomarker information for clinical use and drug development.[74] They determined that they would have to develop specific regulatory science standards, research methods, reference material and other tools in order to incorporate personalised medicine into their current regulatory practices. For example, they are working on a "genomic reference library" for regulatory agencies to compare and test the validity of different sequencing platforms in an effort to uphold reliability.[74] A major challenge for those regulating personalized medicine is a way to demonstrate its effectiveness relative to the current standard of care. The new technology must be assessed for both clinical and cost effectiveness, and as it stands, regulatory agencies have no standardized method.[106]

Intellectual property rights

As with any innovation in medicine, investment and interest in personalised medicine is influenced by intellectual property rights.[103] There has been a lot of controversy regarding patent protection for diagnostic tools, genes, and biomarkers.[107] In June 2013, the U.S. Supreme Court ruled that natural occurring genes cannot be patented, while "synthetic DNA" that is edited or artificially- created can still be patented. The Patent Office is currently reviewing a number of issues related to patent laws for personalised medicine, such as whether "confirmatory" secondary genetic tests post initial diagnosis, can have full immunity from patent laws. Those who oppose patents argue that patents on DNA sequences are an impediment to ongoing research while proponents point to research exemption and stress that patents are necessary to entice and protect the financial investments required for commercial research and the development and advancement of services offered.[107]

Reimbursement policies

Reimbursement policies will have to be redefined to fit the changes that personalised medicine will bring to the healthcare system. Some of the factors that should be considered are the level of efficacy of various genetic tests in the general population, cost-effectiveness relative to benefits, how to deal with payment systems for extremely rare conditions, and how to redefine the insurance concept of "shared risk" to incorporate the effect of the newer concept of "individual risk factors".[103] The study, *Barriers to the Use of Personalized Medicine in Breast Cancer*, took two different diagnostic tests which are BRACAnalysis and Oncotype DX. These tests have over ten-day turnaround times which results in the tests failing and delays in treatments. Patients are not being reimbursed for these delays which results in tests not being ordered. Ultimately, this leads to patients having to pay out-of-pocket for treatments because insurance companies do not want to accept the risks involved.[108]

Patient privacy and confidentiality

Perhaps the most critical issue with the commercialization of personalised medicine is the protection of patients. One of the largest issues is the fear and potential consequences for patients who are predisposed after genetic testing or found to be non-responsive towards certain treatments. This includes the psychological effects on patients due to genetic testing results. The right of family members who do not directly consent is another issue, considering that genetic predispositions and risks are inheritable. The implications for certain ethnic groups and presence of a common allele would also have to be considered.[103]

Moreover, we could refer to the privacy issue at all layers of personalized medicine from discovery to treatment. One of the leading issues is the consent of the patients to have their information used in genetic testing algorithms primarily AI algorithms. The consent of the institution who is providing the data to be used is of prominent concern as well.[104] In 2008, the Genetic Information Nondiscrimination Act (GINA) was passed in an effort to minimize the fear of patients participating in genetic research by ensuring that their genetic information will not be misused by employers or insurers.[103] On February 19, 2015, FDA issued a press release titled: "FDA permits marketing of first direct-to-consumer genetic carrier test for Bloom syndrome.[8]

Data biases

Data biases also play an integral role in personalized medicine. It is important to ensure that the sample of genes being tested come from different populations. This is to ensure that the samples do not exhibit the same human biases we use in decision making.[109]

Consequently, if the designed algorithms for personalized medicine are biased, then the outcome of the algorithm will also be biased because of the lack of genetic testing in certain populations.[110] For instance, the results from the Framingham Heart Study have led to biased outcomes of predicting the risk of cardiovascular disease. This is because the sample was tested only on white people and when applied to the non-white population, the results were biased with overestimation and underestimation risks of cardiovascular disease.[111]

Implementation

Several issues must be addressed before personalized medicine can be implemented. Very little of the human genome has been analyzed, and even if healthcare providers had access to a patient's full genetic information, very little of it could be effectively leveraged into treatment.[112] Challenges also arise when processing such large amounts of genetic data. Even with error rates as low as 1 per 100 kilobases, processing a human genome could have roughly 30,000 errors.[113] This many errors, especially when trying to identify specific markers, can make discoveries and verifiability difficult. There are methods to overcome this, but they are computationally taxing and expensive. There are also issues from an effectiveness standpoint, as after the genome has been processed, function in the variations among genomes must be analyzed using genome-wide studies. While the

impact of the SNPs discovered in these kinds of studies can be predicted, more work must be done to control for the vast amounts of variation that can occur because of the size of the genome being studied.[113] In order to effectively move forward in this area, steps must be taken to ensure the data being analyzed is good, and a wider view must be taken in terms of analyzing multiple SNPs for a phenotype. The most pressing issue that the implementation of personalized medicine is to apply the results of genetic mapping to improve the healthcare system. This is not only due to the infrastructure and technology required for a centralized database of genome data, but also the physicians that would have access to these tools would likely be unable to fully take advantage of them.[113] In order to truly implement a personalized medicine healthcare system, there must be an end-to-end change.

The Copenhagen Institute for Futures Studies and Roche set up FutureProofing Healthcare[114] which produces a Personalised Health Index, rating different countries performance against 27 different indicators of personalised health across four categories called 'Vital Signs'. They have run conferences in many countries to examine their findings.[115][116]

Yorum

Hekimlik Mesleğindeki Yapılanma:

Zaman içinde hekimlik mesleğinde farklı yaklaşımlar olduğu gözlenmektedir. Ülkemiz için son düzey, ilk düzey ile birlikte olmasına karşın, genel yaklaşım boyutu olarak tanımlanması önemlidir.

Başlıca Boyutlar:

FAZ 1.0: Hasta bilmez, doktor bilir hasta doktoru dinlemelidir, dediğini yapmalıdır.

FAZ 2.0: Ortak akıl, kamu vicdanı denilir, kurul ve konseyler önemlidir, belirli kalıp ve usullere uymalıdır.

FAZ 3.0: Tetkikler sonucunda ne gerekiyorsa o yapılır, Hastadaki bulguya göre yaklaşım yapılmalıdır.

FAZ 4.0: Hastalık YOK, Hasta VAR ve hasta rızası temelinde yaklaşım yapılır, buna göre seçenekler oluşturulur. İbni Sina zamanından bu yana Türk Tıp uygulaması esasları içindedir. Temel olan, vücudun istediği ile hastanın istediğinin buluşturulmasıdır. Hastaya zararlı ve zorla bir yaklaşım yapılamaz.

Kişiselleştirilmiş Tıp Yaklaşımı: Hekimlik Mesleğinde zaten Hastalık YOK, hasta VAR yapısında olduğu bunun İbni Sina boyutundan beri Türkiye'de bir etik ilke olduğu için, burada yeni bir kapsam olmadığı anlaşılmaktadır. Ancak bunun yeni nesle öğretilmesi açısından önemlidir. Kitabı değil, hastanın kendisi tedavi edilir, bu nedenle izlenir ve irdelenir. En ideal A grubu kanıta dayalı tıp kavramında bile %5-15 hata olacağı öngörülmektedir

NEONATOLOJİK AÇIDAN: Perinatoloji ve Neonatoloji yaklaşımı zaten tüm bilimsel veri bir danışman, yol göstericidir, hastadaki veriye göre davranılması, buna göre uyarlama ve bir bakıma bilimin terazilemesi, terzi yaklaşımı, bireye göre yaklaşım önemlidir.

Gelişim değişimi gerekli kılar: İnsanlar bir makine olmadığına göre, kanıta dayalı oldukça A grubu yerine olguya göre yaklaşım da söz konusu olunca bunun bir Medikal Felsefe olduğu algılanmalıdır.

Her birey farklıdır, özel ve özgündür: İnsan vücut mekanizması aynı gibi görülse de farklıdır, el parmak izleri gibi değişimler gözlenir. Bu açıdan tetkik ile organ sistemlerin durumu irdelenip ona göre yaklaşımlar yapılmalıdır.

Tanımlama: Organ sistemler devamlı değişim gösterdiği için, eylem veya işlemden önce bakılarak yaklaşım yapılması yerinde olacaktır. Nasıl olsa yerindedir kavramı, felsefesi geçerli olamaz.

Tanımlama ve Yaklaşımlar: Her bireyin hastalığının özel olması ötesinde, her bireye yaklaşım, bilgilendirme, daha doğru tanımlama ile aydınlatma özel olmalıdır. Sorular ve cevaplara da etkin, yerinde doyurucu cevap vermelidir. Rıza ve sorumluluk alacağı içim kişi yaklaşımı, iletişim ve ilişki öne çıkmaktadır.

Tıpta gelişim: Suni Zekâ ve akıllı güdülen yaklaşımlar: Tıp uygulamalarında daha etkin ve verimli olunması için, akıllı zekâ kullanılan cihazlardan yararlanma oranı artmış hatta sadece onlara kalmış denilebilir.

Kişiselleştirilmiş Yaklaşımın önemi: Bazı yararlarından söz edilmektedir. Bunlar:
--Etkin yaklaşım yerine korunmaya yönelme oluşmaktadır.
--Hastalığa yakalanma boyutu erken tanımlanabilmektedir.
--Hastalığın tanımlanması ve boyutu daha erken gözlenebilmektedir.
--Hastalığın yayılmasının önüne geçilebilmektedir.
--Hatalıktan korunma stratejileri geliştirilebilmektedir.
--Daha etkin ilaçlar kullanılabilmektedir.
--Yan etkileri daha düşük ilaç ve daha düşük dozda kullanılabilmektedir.
--Zamana, fiyat, başarısızlık oranı düşürülen bir ilaç yaklaşımına olanak sağlamaktadır.
--Hasta bakım ve yaklaşımlarda hata payını da düşürmektedir.
Tüm bunlar dikkate alınınca, yaklaşımların bu prensipler içinde olması beklenmelidir.

Tedavi yaklaşımı: İlaçlar bireye özgü oluşturularak kullanılmalıdır.

Geri ödeme boyutu ile yaklaşım: Tedavilerin izleminde, bir tedavi planına başlayınca, sonuna kadar gidilmesi ve bundan sonra karar değişikliği yapılması değil, ilk dozdan sonra elde edilene göre değişim öngörülmektedir. Bu açıdan devamlı dinamik boyut önemlidir.

Hastanın gizliliği ve özgünlüğü: Sağlık yaklaşımlarında Türk Deontoloji Nizamnamesi içinde önemlidir.

Hastadaki verilere göre yaklaşım: Alerji testine göre tedavi yaklaşımı gibi, kanser ve diğer tedavilerde de hastaya özgü immün-globulin ve kanser tipine göre özgün tedavi yaklaşımı yapılmaktadır. Bazı maddeler hastadan alınıp, nükleer madde veya bazı ilaçlarla bunlar bağlanıp, immün-tedavi gibi yaklaşımlar yapılmaktadır.

NEONATOLOJİ AÇISINDAN: Bir bebeğin, prematürenin oksijenlenmesi yapılması, oksijen vermek ile onu giderme boyutu klasik öneridir. Ancak oksijen toksik, alveolde sıvı sızması ve kapanmasına da neden olabilir. Bu açıdan her bebeğe göre yaklaşım ve surfaktan verilmesi ile açılma ötesinde, günlük akciğer direncini düşürmek için her gün verilmesi de gündeme gelmelidir. Kısaca bebeğe göre yaklaşım esastır.

Evidence-based medicine, Wikipedia[10]

Evidence-based medicine (**EBM**) is "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients."[1] The aim of EBM is to integrate the experience of the clinician, the values of the patient, and the best available scientific information to guide decision-making about clinical management. The term was originally used to describe an approach to teaching the practice of medicine and improving decisions by individual physicians about individual patients.[2]
The EBM Pyramid is a tool that helps in visualizing the hierarchy of evidence in medicine, from least authoritative, like expert opinions, to most authoritative, like systematic reviews.[3]
Background, history, and definition

Medicine has a long history of scientific inquiry about the prevention, diagnosis, and treatment of human disease.[4][5] In the 11th century AD, Avicenna, a Persian physician and philosopher, developed an approach to EBM that was mostly similar to current ideas and practises.[6][7]

The concept of a controlled clinical trial was first described in 1662 by Jan Baptist van Helmont in reference to the practice of bloodletting.[8] Wrote Van Helmont:

Let us take out of the Hospitals, out of the Camps, or from elsewhere, 200, or 500 poor People, that have fevers or Pleuritis. Let us divide them in Halfes, let us cast lots, that one halfe of them may fall to my share, and the others to yours; I will cure them without blood-letting and sensible evacuation; but you do, as ye know ... we shall see how many Funerals both of us shall have...

The first published report describing the conduct and results of a controlled clinical trial was by James Lind, a Scottish naval surgeon who conducted research on scurvy during his time aboard HMS *Salisbury* in the Channel Fleet, while patrolling the Bay of Biscay. Lind divided the sailors participating in his experiment into six groups, so that the effects of various treatments could be fairly compared. Lind found improvement in symptoms and signs of scurvy among the group of men treated with lemons or oranges. He published a treatise describing the results of this experiment in 1753.[9]

An early critique of statistical methods in medicine was published in 1835.[10]

The term 'evidence-based medicine' was introduced in 1990 by Gordon Guyatt of McMaster University.[11][12][13][14]

Clinical decision-making

Alvan Feinstein's publication of *Clinical Judgment* in 1967 focused attention on the role of clinical reasoning and identified biases that can affect it.[15] In 1972, Archie Cochrane published *Effectiveness and Efficiency*, which described the lack of controlled trials supporting many practices that had previously been assumed to be effective.[16] In 1973, John Wennberg began to document wide variations in how physicians practiced.[17] Through the 1980s, David M. Eddy described errors in clinical reasoning and gaps in evidence.[18][19][20][21] In the mid-1980s, Alvin Feinstein, David Sackett and others published textbooks on clinical epidemiology, which translated epidemiological methods to physician decision-making.[22][23] Toward the end of the 1980s, a group at RAND showed that large proportions of procedures performed by physicians were considered inappropriate even by the standards of their own experts.[24]

Evidence-based guidelines and policies

David M. Eddy first began to use the term 'evidence-based' in 1987 in workshops and a manual commissioned by the Council of Medical Specialty Societies to teach formal methods for designing clinical practice guidelines. The manual was eventually published by the American College of Physicians.[25][26] Eddy first published the term 'evidence-based' in March 1990, in an article in the *Journal of the American Medical Association* that laid out the principles of evidence-based guidelines and population-level policies, which Eddy described as "explicitly describing the available evidence that pertains to a policy and tying the policy to evidence instead of standard-of-care practices or the beliefs of experts. The pertinent evidence must be identified, described, and analyzed. The policymakers must determine whether the policy is justified by the evidence. A rationale must be written."[27] He discussed evidence-based policies in several other papers published in *JAMA* in the spring of 1990.[27][28] Those papers were part of a series of 28 published in *JAMA* between 1990 and 1997 on formal methods for designing population-level guidelines and policies.[29]

Medical education

The term 'evidence-based medicine' was introduced slightly later, in the context of medical education. In the autumn of 1990, Gordon Guyatt used it in an unpublished description of a program at McMaster University for prospective or new medical students.[30] Guyatt and others first published the term two years later (1992) to describe a new approach to teaching the practice of medicine.[2]

In 1996, David Sackett and colleagues clarified the definition of this tributary of evidence-based medicine as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. ... [It] means integrating individual clinical expertise with the best available external clinical evidence from systematic research."[1] This branch of evidence-based medicine aims to make individual decision making more structured and objective by better reflecting the evidence from research.[31][32] Population-based data are applied to the care of an individual patient,[33] while respecting the fact that practitioners have clinical

expertise reflected in effective and efficient diagnosis and thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences.[1]

Between 1993 and 2000, the Evidence-Based Medicine Working Group at McMaster University published the methods to a broad physician audience in a series of 25 "Users' Guides to the Medical Literature" in *JAMA*. In 1995 Rosenberg and Donald defined individual-level, evidence-based medicine as "the process of finding, appraising, and using contemporaneous research findings as the basis for medical decisions."[34] In 2010, Greenhalgh used a definition that emphasized quantitative methods: "the use of mathematical estimates of the risk of benefit and harm, derived from high-quality research on population samples, to inform clinical decision-making in the diagnosis, investigation or management of individual patients."[35][1]

The two original definitions[*which?*] highlight important differences in how evidence-based medicine is applied to populations versus individuals. When designing guidelines applied to large groups of people in settings with relatively little opportunity for modification by individual physicians, evidence-based policymaking emphasizes that good evidence should exist to document a test's or treatment's effectiveness.[36] In the setting of individual decision-making, practitioners can be given greater latitude in how they interpret research and combine it with their clinical judgment.[1][37] In 2005, Eddy offered an umbrella definition for the two branches of EBM: "Evidence-based medicine is a set of principles and methods intended to ensure that to the greatest extent possible, medical decisions, guidelines, and other types of policies are based on and consistent with good evidence of effectiveness and benefit."[38]

Progress

In the area of evidence-based guidelines and policies, the explicit insistence on evidence of effectiveness was introduced by the American Cancer Society in 1980.[39] The U.S. Preventive Services Task Force (USPSTF) began issuing guidelines for preventive interventions based on evidence-based principles in 1984.[40] In 1985, the Blue Cross Blue Shield Association applied strict evidence-based criteria for covering new technologies.[41] Beginning in 1987, specialty societies such as the American College of Physicians, and voluntary health organizations such as the American Heart Association, wrote many evidence-based guidelines. In 1991, Kaiser Permanente, a managed care organization in the US, began an evidence-based guidelines program.[42] In 1991, Richard Smith wrote an editorial in the *British Medical Journal* and introduced the ideas of evidence-based policies in the UK.[43] In 1993, the Cochrane Collaboration created a network of 13 countries to produce systematic reviews and guidelines.[44] In 1997, the US Agency for Healthcare Research and Quality (AHRQ, then known as the Agency for Health Care Policy and Research, or AHCPR) established Evidence-based Practice Centers (EPCs) to produce evidence reports and technology assessments to support the development of guidelines.[45] In the same year, a National Guideline Clearinghouse that followed the principles of evidence-based policies was created by AHRQ, the AMA, and the American Association of Health Plans (now America's Health Insurance Plans).[46] In 1999, the National Institute for Clinical Excellence (NICE) was created in the UK.[47]

In the area of medical education, medical schools in Canada, the US, the UK, Australia, and other countries[48][49] now offer programs that teach evidence-based medicine. A 2009 study of UK programs found that more than half of UK medical schools offered some training in evidence-based medicine, although the methods and content varied considerably, and EBM teaching was restricted by lack of curriculum time, trained tutors and teaching materials.[50] Many programs have been developed to help individual physicians gain better access to evidence. For example, UpToDate was created in the early 1990s.[51] The Cochrane Collaboration began publishing evidence reviews in 1993.[42] In 1995, BMJ Publishing Group launched Clinical Evidence, a 6-monthly periodical that provided brief summaries of the current state of evidence about important clinical questions for clinicians.[52]

Current practice

By 2000, use of the term *evidence-based* had extended to other levels of the health care system. An example is evidence-based health services, which seek to increase the competence of health service decision makers and the practice of evidence-based medicine at the organizational or institutional level.[53]

The multiple tributaries of evidence-based medicine share an emphasis on the importance of incorporating evidence from formal research in medical policies and decisions. However, because they differ on the extent to which they require good evidence of effectiveness before promoting a guideline or payment policy, a distinction is sometimes made between evidence-based medicine and science-based medicine, which also takes into account factors such as prior plausibility and compatibility with established science (as when medical

organizations promote controversial treatments such as acupuncture).[54] Differences also exist regarding the extent to which it is feasible to incorporate individual-level information in decisions. Thus, evidence-based guidelines and policies may not readily "hybridise" with experience-based practices orientated towards ethical clinical judgement, and can lead to contradictions, contest, and unintended crises.[21] The most effective "knowledge leaders" (managers and clinical leaders) use a broad range of management knowledge in their decision making, rather than just formal evidence.[22] Evidence-based guidelines may provide the basis for governmentality in health care, and consequently play a central role in the governance of contemporary health care systems.[23]

Methods

Steps

The steps for designing explicit, evidence-based guidelines were described in the late 1980s: formulate the question (population, intervention, comparison intervention, outcomes, time horizon, setting); search the literature to identify studies that inform the question; interpret each study to determine precisely what it says about the question; if several studies address the question, synthesize their results (meta-analysis); summarize the evidence in evidence tables; compare the benefits, harms and costs in a balance sheet; draw a conclusion about the preferred practice; write the guideline; write the rationale for the guideline; have others review each of the previous steps; implement the guideline.[20]

For the purposes of medical education and individual-level decision making, five steps of EBM in practice were described in 1992[55] and the experience of delegates attending the 2003 Conference of Evidence-Based Health Care Teachers and Developers was summarized into five steps and published in 2005.[56] This five-step process can broadly be categorized as follows:

1. Translation of uncertainty to an answerable question; includes critical questioning, study design and levels of evidence[57]
2. Systematic retrieval of the best evidence available[58]
3. Critical appraisal of evidence for internal validity that can be broken down into aspects regarding:[33]
    - Systematic errors as a result of selection bias, information bias and confounding
    - Quantitative aspects of diagnosis and treatment
    - The effect size and aspects regarding its precision
    - Clinical importance of results
    - External validity or generalizability
4. Application of results in practice[59]
5. Evaluation of performance[60]

Evidence reviews

Systematic reviews of published research studies are a major part of the evaluation of particular treatments. The Cochrane Collaboration is one of the best-known organisations that conducts systematic reviews. Like other producers of systematic reviews, it requires authors to provide a detailed study protocol as well as a reproducible plan of their literature search and evaluations of the evidence.[61] After the best evidence is assessed, treatment is categorized as (1) likely to be beneficial, (2) likely to be harmful, or (3) without evidence to support either benefit or harm.[*citation needed*]

A 2007 analysis of 1,016 systematic reviews from all 50 Cochrane Collaboration Review Groups found that 44% of the reviews concluded that the intervention was likely to be beneficial, 7% concluded that the intervention was likely to be harmful, and 49% concluded that evidence did not support either benefit or harm. 96% recommended further research.[62] In 2017, a study assessed the role of systematic reviews produced by Cochrane Collaboration to inform US private payers' policymaking; it showed that although the medical policy documents of major US private payers were informed by Cochrane systematic reviews, there was still scope to encourage the further use.[63]

Assessing the quality of evidence

Evidence-based medicine categorizes different types of clinical evidence and rates or grades them[64] according to the strength of their freedom from the various biases that beset medical research. For example, the strongest evidence for therapeutic interventions is provided by systematic review of randomized, well-blinded, placebo-controlled trials with allocation concealment and complete follow-up involving a homogeneous patient population and medical condition. In contrast, patient testimonials, case reports, and even expert opinion have

little value as proof because of the placebo effect, the biases inherent in observation and reporting of cases, and difficulties in ascertaining who is an expert (however, some critics have argued that expert opinion "does not belong in the rankings of the quality of empirical evidence because it does not represent a form of empirical evidence" and continue that "expert opinion would seem to be a separate, complex type of knowledge that would not fit into hierarchies otherwise limited to empirical evidence alone.").[65]

Several organizations have developed grading systems for assessing the quality of evidence. For example, in 1989 the U.S. Preventive Services Task Force (USPSTF) put forth the following system:[66]

- Level I: Evidence obtained from at least one properly designed randomized controlled trial.
- Level II-1: Evidence obtained from well-designed controlled trials without randomization.
- Level II-2: Evidence obtained from well-designed cohort studies or case-control studies, preferably from more than one center or research group.
- Level II-3: Evidence obtained from multiple time series designs with or without the intervention. Dramatic results in uncontrolled trials might also be regarded as this type of evidence.
- Level III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Another example are the Oxford CEBM Levels of Evidence published by the Centre for Evidence-Based Medicine. First released in September 2000, the Levels of Evidence provide a way to rank evidence for claims about prognosis, diagnosis, treatment benefits, treatment harms, and screening, which most grading schemes do not address. The original CEBM Levels were Evidence-Based on Call to make the process of finding evidence feasible and its results explicit. In 2011, an international team redesigned the Oxford CEBM Levels to make them more understandable and to take into account recent developments in evidence ranking schemes. The Oxford CEBM Levels of Evidence have been used by patients and clinicians, as well as by experts to develop clinical guidelines, such as recommendations for the optimal use of phototherapy and topical therapy in psoriasis[67] and guidelines for the use of the BCLC staging system for diagnosing and monitoring hepatocellular carcinoma in Canada.[68]

In 2000, a system was developed by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group. The GRADE system takes into account more dimensions than just the quality of medical research.[69] It requires users who are performing an assessment of the quality of evidence, usually as part of a systematic review, to consider the impact of different factors on their confidence in the results. Authors of GRADE tables assign one of four levels to evaluate the quality of evidence, on the basis of their confidence that the observed effect (a numeric value) is close to the true effect. The confidence value is based on judgments assigned in five different domains in a structured manner.[70] The GRADE working group defines 'quality of evidence' and 'strength of recommendations' based on the quality as two different concepts that are commonly confused with each other.[70]

Systematic reviews may include randomized controlled trials that have low risk of bias, or observational studies that have high risk of bias. In the case of randomized controlled trials, the quality of evidence is high but can be downgraded in five different domains.[71]

- Risk of bias: A judgment made on the basis of the chance that bias in included studies has influenced the estimate of effect.
- Imprecision: A judgment made on the basis of the chance that the observed estimate of effect could change completely.
- Indirectness: A judgment made on the basis of the differences in characteristics of how the study was conducted and how the results are actually going to be applied.
- Inconsistency: A judgment made on the basis of the variability of results across the included studies.
- Publication bias: A judgment made on the basis of the question whether all the research evidence has been taken to account.[72]

In the case of observational studies per GRADE, the quality of evidence starts off lower and may be upgraded in three domains in addition to being subject to downgrading.[71]

- Large effect: Methodologically strong studies show that the observed effect is so large that the probability of it changing completely is less likely.
- Plausible confounding would change the effect: Despite the presence of a possible confounding factor that is expected to reduce the observed effect, the effect estimate still shows significant effect.

- Dose response gradient: The intervention used becomes more effective with increasing dose. This suggests that a further increase will likely bring about more effect.

Meaning of the levels of quality of evidence as per GRADE:[70]

- High Quality Evidence: The authors are very confident that the presented estimate lies very close to the true value. In other words, the probability is very low that further research will completely change the presented conclusions.
- Moderate Quality Evidence: The authors are confident that the presented estimate lies close to the true value, but it is also possible that it may be substantially different. In other words, further research may completely change the conclusions.
- Low Quality Evidence: The authors are not confident in the effect estimate, and the true value may be substantially different. In other words, further research is likely to change the presented conclusions completely.
- Very Low-Quality Evidence: The authors do not have any confidence in the estimate and it is likely that the true value is substantially different from it. In other words, new research will probably change the presented conclusions completely.

Categories of recommendations

In guidelines and other publications, recommendation for a clinical service is classified by the balance of risk versus benefit and the level of evidence on which this information is based. The U.S. Preventive Services Task Force uses the following system:[73]

- Level A: Good scientific evidence suggests that the benefits of the clinical service substantially outweigh the potential risks. Clinicians should discuss the service with eligible patients.
- Level B: At least fair scientific evidence suggests that the benefits of the clinical service outweigh the potential risks. Clinicians should discuss the service with eligible patients.
- Level C: At least fair scientific evidence suggests that the clinical service provides benefits, but the balance between benefits and risks is too close for general recommendations. Clinicians need not offer it unless individual considerations apply.
- Level D: At least fair scientific evidence suggests that the risks of the clinical service outweigh potential benefits. Clinicians should not routinely offer the service to asymptomatic patients.
- Level I: Scientific evidence is lacking, of poor quality, or conflicting, such that the risk versus benefit balance cannot be assessed. Clinicians should help patients understand the uncertainty surrounding the clinical service.

GRADE guideline panelists may make strong or weak recommendations on the basis of further criteria. Some of the important criteria are the balance between desirable and undesirable effects (not considering cost), the quality of the evidence, values and preferences and costs (resource utilization).[71]

Despite the differences between systems, the purposes are the same: to guide users of clinical research information on which studies are likely to be most valid. However, the individual studies still require careful critical appraisal.[*citation needed*]

Statistical measures

Evidence-based medicine attempts to express clinical benefits of tests and treatments using mathematical methods. Tools used by practitioners of evidence-based medicine include:

- Likelihood ratio

The pre-test odds of a particular diagnosis, multiplied by the likelihood ratio, determines the post-test odds. (Odds can be calculated from, and then converted to, the [more familiar] probability.) This reflects Bayes' theorem. The differences in likelihood ratio between clinical tests can be used to prioritize clinical tests according to their usefulness in a given clinical situation.

- AUC-ROC The area under the receiver operating characteristic curve (AUC-ROC) reflects the relationship between sensitivity and specificity for a given test. High-quality tests will have an AUC-ROC approaching 1, and high-quality publications about clinical tests will provide information about the AUC-ROC. Cutoff values for positive and negative tests can influence specificity and sensitivity, but they do not affect AUC-ROC.

- Number needed to treat (NNT)/Number needed to harm (NNH). NNT and NNH are ways of expressing the effectiveness and safety, respectively, of interventions in a way that is clinically meaningful. NNT is the number of people who need to be treated in order to achieve the desired outcome (e.g. survival from cancer) in one patient. For example, if a treatment increases the chance of survival by 5%, then 20 people need to be treated in order for 1 additional patient to survive because of the treatment. The concept can also be applied to diagnostic tests. For example, if 1,339 women age 50–59 need to be invited for breast cancer screening over a ten-year period in order to prevent one woman from dying of breast cancer,[74] then the NNT for being invited to breast cancer screening is 1339.

Quality of clinical trials

Evidence-based medicine attempts to objectively evaluate the quality of clinical research by critically assessing techniques reported by researchers in their publications.

- Trial design considerations: High-quality studies have clearly defined eligibility criteria and have minimal missing data.[75][76]
- Generalizability considerations: Studies may only be applicable to narrowly defined patient populations and may not be generalizable to other clinical contexts.[75]
- Follow-up: Sufficient time for defined outcomes to occur can influence the prospective study outcomes and the statistical power of a study to detect differences between a treatment and control arm.[77]
- Power: A mathematical calculation can determine whether the number of patients is sufficient to detect a difference between treatment arms. A negative study may reflect a lack of benefit, or simply a lack of sufficient quantities of patients to detect a difference.[77][75][78]

Limitations and criticism

There are a number of limitations and criticisms of evidence-based medicine.[79][80][81] Two widely cited categorization schemes for the various published critiques of EBM include the three-fold division of Straus and McAlister ("limitations universal to the practice of medicine, limitations unique to evidence-based medicine and misperceptions of evidence-based-medicine")[82] and the five-point categorization of Cohen, Stavri and Hersh (EBM is a poor philosophic basis for medicine, defines evidence too narrowly, is not evidence-based, is limited in usefulness when applied to individual patients, or reduces the autonomy of the doctor/patient relationship).[83]

In no particular order, some published objections include:

- Research produced by EBM, such as from randomized controlled trials (RCTs), may not be relevant for all treatment situations.[84] Research tends to focus on specific populations, but individual persons can vary substantially from population norms. Because certain population segments have been historically under-researched (due to reasons such as race, gender, age, and co-morbid diseases), evidence from RCTs may not be generalizable to those populations.[85] Thus, EBM applies to groups of people, but this should not preclude clinicians from using their personal experience in deciding how to treat each patient. One author advises that "the knowledge gained from clinical research does not directly answer the primary clinical question of what is best for the patient at hand" and suggests that evidence-based medicine should not discount the value of clinical experience.[65] Another author stated that "the practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research."[1]
- The theoretical ideal of EBM (that every narrow clinical question, of which hundreds of thousands can exist, would be answered by meta-analysis and systematic reviews of multiple RCTs) faces the limitation that research (especially the RCTs themselves) is expensive; thus, in reality, for the foreseeable future, the demand for EBM will always be much higher than the supply, and the best humanity can do is to triage the application of scarce resources.
- Research can be influenced by biases such as publication bias and conflict of interest in academic publishing. For example, studies with conflicts due to industry funding are more likely to favor their product.[86][87] It has been argued that contemporary evidence based medicine is an illusion, since evidence based medicine has been corrupted by corporate interests, failed regulation, and commercialisation of academia.[88]

- Systematic Reviews methodologies are capable of bias and abuse in respect of (i) choice of inclusion criteria (ii) choice of outcome measures, comparisons and analyses (iii) the subjectivity inevitable in Risk of Bias assessments, even when codified procedures and criteria are observed.[89][90][91] An example of all these problems can be seen in a Cochrane Review,[92] as analyzed by Edmund J. Fordham, et al. in their relevant review.[89]
- A lag exists between when the RCT is conducted and when its results are published.[93]
- A lag exists between when results are published and when they are properly applied.[94]
- Hypocognition (the absence of a simple, consolidated mental framework into which new information can be placed) can hinder the application of EBM.[95]
- Values: while patient values are considered in the original definition of EBM, the importance of values is not commonly emphasized in EBM training, a potential problem under current study.[96][97][98]

A 2018 study, "Why all randomised controlled trials produce biased results", assessed the 10 most cited RCTs and argued that trials face a wide range of biases and constraints, from trials only being able to study a small set of questions amenable to randomisation and generally only being able to assess the *average* treatment effect of a sample, to limitations in extrapolating results to another context, among many others outlined in the study.[79]

Application of evidence in clinical settings

Despite the emphasis on evidence-based medicine, unsafe or ineffective medical practices continue to be applied, because of patient demand for tests or treatments, because of failure to access information about the evidence, or because of the rapid pace of change in the scientific evidence.[99] For example, between 2003 and 2017, the evidence shifted on hundreds of medical practices, including whether hormone replacement therapy was safe, whether babies should be given certain vitamins, and whether antidepressant drugs are effective in people with Alzheimer's disease.[100] Even when the evidence unequivocally shows that a treatment is either not safe or not effective, it may take many years for other treatments to be adopted.[99]

There are many factors that contribute to lack of uptake or implementation of evidence-based recommendations.[101] These include lack of awareness at the individual clinician or patient (micro) level, lack of institutional support at the organisation level (meso) level or higher at the policy (macro) level.[102][103] In other cases, significant change can require a generation of physicians to retire or die and be replaced by physicians who were trained with more recent evidence.[99]

Physicians may also reject evidence that conflicts with their anecdotal experience or because of cognitive biases – for example, a vivid memory of a rare but shocking outcome (the availability heuristic), such as a patient dying after refusing treatment.[99] They may overtreat to "do something" or to address a patient's emotional needs.[99] They may worry about malpractice charges based on a discrepancy between what the patient expects and what the evidence recommends.[99] They may also overtreat or provide ineffective treatments because the treatment feels biologically plausible.[99]

It is the responsibility of those developing clinical guidelines to include an implementation plan to facilitate uptake.[104] The implementation process will include an implementation plan, analysis of the context, identifying barriers and facilitators and designing the strategies to address them.[104]

Education

Training in evidence based medicine is offered across the continuum of medical education.[56] Educational competencies have been created for the education of health care professionals.[105][56][106]

The Berlin questionnaire and the Fresno Test[107][108] are validated instruments for assessing the effectiveness of education in evidence-based medicine.[109][110] These questionnaires have been used in diverse settings.[111][112]

A Campbell systematic review that included 24 trials examined the effectiveness of e-learning in improving evidence-based health care knowledge and practice. It was found that e-learning, compared to no learning, improves evidence-based health care knowledge and skills but not attitudes and behaviour. No difference in outcomes is present when comparing e-learning with face-to-face learning. Combining e-learning and face-to-face learning (blended learning) has a positive impact on evidence-based knowledge, skills, attitude and behavior.[113] As a form of e-learning, some medical school students engage in editing Wikipedia to increase their EBM skills,[114] and some students construct EBM materials to develop their skills in communicating medical knowledge.[115]

Yorum

Hekimlik yaklaşımı kanıta dayalı tıp kapsamında olmalıdır: Bir kişiye genel değil, özgün yaklaşmak gerekir. Bu açıdan mutlaka kanıta dayanılmalıdır

Önerilen kategoriler:
A Düzeyi; YAP: Burada iyi kanıt söz konusudur. Burada %5-15 hastanın farklı olacağı öngörülür.
B Düzeyi; YAPILABİLİR: Burada farklılık oranı %25 kadar olsa bile, izlem ile gözetilmelidir.
C Düzeyi: Burada olgu yaklaşımıdır, genelleştirme hatalı olabilir.
D Düzeyi: Burada olayı yarar vardır. Buna göre öneri yapılır.
E Düzeyi: Burada bilimsel kanıt olmadığı dikkate alınmalıdır. Plasebo uygulamaları bu gruptadır.
Tüm bu düzey gruplandırılması istatistiksel veri ötesinde, baştan oluşturulan yaklaşımla olmaktadır.

Sağlıkta Sigortalama

Tüm sağlık harcamalarını içine alan bir sigortalama sistemidir. Devlet bunu Ülkemizde karşılamaktadır.
Sigortalama yapısında belirli zamanda kontroller ve yapılması gerekenler vardır. Bu yapılmaz ise geçerliliği olmaz. Ancak Devlet yapısında bu türde bir zorlama olmaz.

Ev ziyaretleri, çocuk bakım hizmetleri, yaşlı bakımı gibi yaklaşımlar sorun olmaması içindir, bunu devlet karşılamaktadır.

Genel Devlet sigortalama sistemi dışında olan sigortalama özel hastane veya poliklinik hizmetlerinden yararlanmak için kullanıldığı, Ülkemizde izlenmektedir.

Health insurance, Wikipedia[11]

Health insurance or **medical insurance** (also known as **medical aid** in South Africa) is a type of insurance that covers the whole or a part of the risk of a person incurring medical expenses. As with other types of insurance, risk is shared among many individuals. By estimating the overall risk of health risk and health system expenses over the risk pool, an insurer can develop a routine finance structure, such as a monthly premium or payroll tax, to provide the money to pay for the health care benefits specified in the insurance agreement.[1] The benefit is administered by a central organization, such as a government agency, private business, or not-for-profit entity. According to the Health Insurance Association of America, health insurance is defined as "coverage that provides for the payments of benefits as a result of sickness or injury. It includes insurance for losses from accident, medical expense, disability, or accidental death and dismemberment".[2]:225

Background

A health insurance policy is:

1. A contract between an insurance provider (e.g. an insurance company or a government) and an individual or his/her sponsor (that is an employer or a community organization). The contract can be renewable (annually, monthly) or lifelong in the case of private insurance. It can also be mandatory for all citizens in the case of national plans. The type and amount of health care costs that will be covered

by the health insurance provider are specified in writing, in a member contract or "Evidence of Coverage" booklet for private insurance, or in a national [health policy] for public insurance.

2. (US specific) In the U.S., there are two types of health insurance – tax payer-funded and private-funded.[3] A private-funded insurance plan example includes an employer-sponsored self-funded ERISA (Employee Retirement Income Security Act of 1974) plan. Typically, these companies promote themselves as having ties to major insurance providers. However, in the context of an ERISA plan, these insurance companies do not actively participate in insurance practices; instead, they handle administrative tasks. Consequently, ERISA plans are exempt from state regulations and fall under federal jurisdiction, overseen by the US Department of Labor (USDOL). Specific details about benefits or coverage can be found in the Summary Plan Description (SPD). Should there be a need for an appeal, the process typically involves initiating it through the insurance company and then reaching out to the Employer's Plan Fiduciary. If a resolution is still not achieved, the decision can be escalated to the USDOL for review to ensure compliance with ERISA regulations, and, if necessary, legal action can be taken by filing a lawsuit in federal court.

The individual insured person's obligations may take several forms:[*citation needed*]

- Premium: The amount the policy-holder or their sponsor (e.g. an employer) pays to the health plan to purchase health coverage. (US specific) According to the healthcare law, a premium is calculated using 5 specific factors regarding the insured person. These factors are age, location, tobacco use, individual vs. family enrollment, and which plan category the insured chooses.[4] Under the Affordable Care Act, the government pays a tax credit to cover part of the premium for persons who purchase private insurance through the Insurance Marketplace.[5]:TS 4:03
- Deductible: The amount that the insured must pay out-of-pocket before the health insurer pays its share. For example, policy-holders might have to pay a $7500 deductible per year, before any of their health care is covered by the health insurer. It may take several doctor's visits or prescription refills before the insured person reaches the deductible and the insurance company starts to pay for care. Furthermore, most policies do not apply co-pays for doctor's visits or prescriptions against your deductible.
- Co-payment: The amount that the insured person must pay out of pocket before the health insurer pays for a particular visit or service. For example, an insured person might pay a $45 co-payment for a doctor's visit, or to obtain a prescription. A co-payment must be paid each time a particular service is obtained.
- Coinsurance: Instead of, or in addition to, paying a fixed amount up front (a co-payment), the co-insurance is a percentage of the total cost that an insured person may also pay. For example, the member might have to pay 20% of the cost of a surgery over and above a co-payment, while the insurance company pays the other 80%. If there is an upper limit on coinsurance, the policy-holder could end up owing very little, or a great deal, depending on the actual costs of the services they obtain.
- Exclusions: Not all services are covered. Billed items like use-and-throw, taxes, etc. are excluded from admissible claim. The insured are generally expected to pay the full cost of non-covered services out of their own pockets.
- Coverage limits: Some health insurance policies only pay for health care up to a certain dollar amount. The insured person may be expected to pay any charges in excess of the health plan's maximum payment for a specific service. In addition, some insurance company schemes have annual or lifetime coverage maxima. In these cases, the health plan will stop payment when they reach the benefit maximum, and the policy-holder must pay all remaining costs.
- Out-of-pocket maximum: Similar to coverage limits, except that in this case, the insured person's payment obligation ends when they reach the out-of-pocket maximum, and health insurance pays all further covered costs. Out-of-pocket maximum can be limited to a specific benefit category (such as prescription drugs) or can apply to all coverage provided during a specific benefit year.
- Capitation: An amount paid by an insurer to a health care provider, for which the provider agrees to treat all members of the insurer.

- In-Network Provider: (U.S. term) A health care provider on a list of providers preselected by the insurer. The insurer will offer discounted coinsurance or co-payments, or additional benefits, to a plan member to see an in-network provider. Generally, providers in network are providers who have a contract with the insurer to accept rates further discounted from the "usual and customary" charges the insurer pays to out-of-network providers.
- Out-of-Network Provider: A health care provider that has not contracted with the plan. If using an out-of-network provider, the patient may have to pay full cost of the benefits and services received from that provider. Even for emergency services, out-of-network providers may bill patients for some additional costs associated.
- Prior Authorization: A certification or authorization that an insurer provides prior to medical service occurring. Obtaining an authorization means that the insurer is obligated to pay for the service, assuming it matches what was authorized.[*disputed – discuss*] Many smaller, routine services do not require authorization.[6]
- Formulary: the list of drugs that an insurance plan agrees to cover.[7]
- Explanation of Benefits: A document that may be sent by an insurer to a patient explaining what was covered for a medical service, and how payment amount and patient responsibility amount were determined.[6] In the case of emergency room billing, patients are notified within 30 days post service. Patients are rarely notified of the cost of emergency room services in-person due to patient conditions and other logistics until receipt of this letter.[8]

Prescription drug plans are a form of insurance offered through some health insurance plans. In the U.S., the patient usually pays a copayment and the prescription drug insurance part or all of the balance for drugs covered in the formulary of the plan.[5]:TS 2:21 Such plans are routinely part of national health insurance programs. For example, in the province of Quebec, Canada, prescription drug insurance is universally required as part of the public health insurance plan, but may be purchased and administered either through private or group plans, or through the public plan.[9]

Some, if not most, health care providers in the United States will agree to bill the insurance company if patients are willing to sign an agreement that they will be responsible for the amount that the insurance company does not pay. The insurance company pays out of network providers according to "reasonable and customary" charges, which may be less than the provider's usual fee. The provider may also have a separate contract with the insurer to accept what amounts to a discounted rate or capitation to the provider's standard charges. It generally costs the patient less to use an in-network provider.

Comparisons

The Commonwealth Fund, in its annual survey, "Mirror, Mirror on the Wall", compares the performance of the health care systems in Australia, New Zealand, the United Kingdom, Germany, Canada and the U.S. Its 2007 study found that, although the U.S. system is the most expensive, it consistently under-performs compared to the other countries.[11] One difference between the U.S. and the other countries in the study is that the U.S. is the only country without universal health insurance coverage.[*citation needed*]

The Commonwealth Fund completed its thirteenth annual health policy survey in 2010.[13] A study of the survey "found significant differences in access, cost burdens, and problems with health insurance that are associated with insurance design".[13] Of the countries surveyed, the results indicated that people in the United States had more out-of-pocket expenses, more disputes with insurance companies than other countries, and more insurance payments denied; paperwork was also higher although Germany had similarly high levels of paperwork.[13]

Australia

The Australian public health system is called Medicare, which provides free universal access to hospital treatment and subsidised out-of-hospital medical treatment. It is funded by a 2% tax levy on all taxpayers, an extra 1% levy on high income earners, as well as general revenue.[*citation needed*]

The private health system is funded by a number of private health insurance organizations. The largest of these is Medibank Private Limited, which was, until 2014, a government-owned entity, when it was privatized and listed on the Australian Stock Exchange.[*citation needed*]

Australian health funds can be either 'for profit' including Bupa and nib; 'mutual' including Australian Unity; or 'non-profit' including GMHBA, HCF and the HBF Health Insurance. Some, such as Police Health, have

membership restricted to particular groups, but the majority have open membership. Membership to most health funds is now also available through comparison websites. These comparison sites operate on a commission-basis by agreement with their participating health funds. The Private Health Insurance Ombudsman also operates a free website that allows consumers to search for and compare private health insurers' products, which includes information on price and level of cover.[14]

Most aspects of private health insurance in Australia are regulated by the *Private Health Insurance Act 2007*. Complaints and reporting of the private health industry is carried out by an independent government agency, the Private Health Insurance Ombudsman. The ombudsman publishes an annual report that outlines the number and nature of complaints per health fund compared to their market share [15]

The private health system in Australia operates on a "community rating" basis, whereby premiums do not vary solely because of a person's previous medical history, the current state of health, or (generally speaking) their age (but see Lifetime Health Cover below). Balancing this are waiting periods, in particular for pre-existing conditions (usually referred to within the industry as PEA, which stands for "pre-existing ailment"). Funds are entitled to impose a waiting period of up to 12 months on benefits for any medical condition the signs and symptoms of which existed during the six months ending on the day the person first took out insurance. They are also entitled to impose a 12-month waiting period for benefits for treatment relating to an obstetric condition, and a 2-month waiting period for all other benefits when a person first takes out private insurance. Funds have the discretion to reduce or remove such waiting periods in individual cases. They are also free not to impose them, to begin with, but this would place such a fund at risk of "adverse selection", attracting a disproportionate number of members from other funds, or from the pool of intending members who might otherwise have joined other funds. It would also attract people with existing medical conditions, who might not otherwise have taken out insurance at all because of the denial of benefits for 12 months due to the PEA Rule. The benefits paid out for these conditions would create pressure on premiums for all the fund's members, causing some to drop their membership, which would lead to further rises in premiums, and a vicious cycle of higher premiums-leaving members would ensue.[*citation needed*]

The Australian government has introduced a number of incentives to encourage adults to take out private hospital insurance. These include:

- **Lifetime Health Cover**: If a person has not taken out private hospital cover by 1 July after their 31st birthday, then when (and if) they do so after this time, their premiums must include a loading of 2% per annum for each year they were without hospital cover. Thus, a person taking out private cover for the first time at age 40 will pay a 20 percent loading. The loading is removed after 10 years of continuous hospital cover. The loading applies only to premiums for hospital cover, not to ancillary (extras) cover.
- **Medicare Levy Surcharge**: People whose taxable income is greater than a specified amount (in the 2011/12 financial year $80,000 for singles and $168,000 for couples[16]) and who do not have an adequate level of private hospital cover must pay a 1% surcharge on top of the standard 1.5% Medicare Levy. The rationale is that if the people in this income group are forced to pay more money one way or another, most would choose to purchase hospital insurance with it, with the possibility of a benefit if they need private hospital treatment – rather than pay it in the form of extra tax as well as having to meet their own private hospital costs.
    - The Australian government announced in May 2008 that it proposes to increase the thresholds, to $100,000 for singles and $150,000 for families. These changes require legislative approval. A bill to change the law has been introduced but was not passed by the Senate.[17] An amended version was passed on 16 October 2008. There have been criticisms that the changes will cause many people to drop their private health insurance, causing a further burden on the public hospital system, and a rise in premiums for those who stay with the private system. Other commentators believe the effect will be minimal.[18]
- **Private Health Insurance Rebate**: The government subsidises the premiums for all private health insurance cover, including hospital and ancillary (extras), by 10%, 20% or 30%, depending on age. The Rudd Government announced in May 2009 that as of July 2010, the Rebate would become means-tested, and offered on a sliding scale. While this move (which would have required legislation) was defeated in the Senate at the time, in early 2011 the Gillard Government announced plans to

reintroduce the legislation after the Opposition loses the balance of power in the Senate. The ALP and Greens have long been against the rebate, referring to it as "middle-class welfare".[19]

Canada

As per the Constitution of Canada, health care is mainly a provincial government responsibility in Canada (the main exceptions being federal government responsibility for services provided to aboriginal peoples covered by treaties, the Royal Canadian Mounted Police, the armed forces, and Members of Parliament). Consequently, each province administers its own health insurance program. The federal government influences health insurance by virtue of its fiscal powers – it transfers cash and tax points to the provinces to help cover the costs of the universal health insurance programs. Under the Canada Health Act, the federal government mandates and enforces the requirement that all people have free access to what are termed "medically necessary services," defined primarily as care delivered by physicians or in hospitals, and the nursing component of long-term residential care. If provinces allow doctors or institutions to charge patients for medically necessary services, the federal government reduces its payments to the provinces by the amount of the prohibited charges. Collectively, the public provincial health insurance systems in Canada are frequently referred to as Medicare.[20] This public insurance is tax-funded out of general government revenues, although British Columbia and Ontario levy a mandatory premium with flat rates for individuals and families to generate additional revenues – in essence, a surtax. Private health insurance is allowed, but in six provincial governments only for services that the public health plans do not cover (for example, semi-private or private rooms in hospitals and prescription drug plans). Four provinces allow insurance for services also mandated by the Canada Health Act, but in practice, there is no market for it. All Canadians are free to use private insurance for elective medical services such as laser vision correction surgery, cosmetic surgery, and other non-basic medical procedures. Some 65% of Canadians have some form of supplementary private health insurance; many of them receive it through their employers.[21] Private-sector services not paid for by the government account for nearly 30 percent of total health care spending.[22]

In 2005, the Supreme Court of Canada ruled, in *Chaoulli v. Quebec*, that the province's prohibition on private insurance for health care already insured by the provincial plan violated the Quebec Charter of Rights and Freedoms, and in particular, the sections dealing with the right to life and security, if there were unacceptably long wait times for treatment, as was alleged in this case. The ruling has not changed the overall pattern of health insurance across Canada, but has spurred on attempts to tackle the core issues of supply and demand and the impact of wait times.[23]

China

Cyprus

In 2020 in Cyprus introduced the General Healthcare System (GHS, also known as GESY) which is an independent insurance fund through which clinics, private doctors, pharmacists, laboratories, microbiological laboratories, and physiotherapists will be paid so that they can offer medical care to permanent residents of Cyprus who will be paying contributions to this fund.[*citation needed*]

In addition to GESY, more than 12 local and international insurance companies (e.g. Bupa, Aetna, Cigna, Metlife) provide individual and group medical insurance plans. The plans are divided into two main categories plans providing coverage from inpatient expenses (i.e. hospitalization, operations) and plans covering inpatient and outpatient expenses (such as doctor visits, medications, physio-therapies).[*citation needed*]

France

The national system of health insurance was instituted in 1945, just after the end of the Second World War. It was a compromise between Gaullist and Communist representatives in the French parliament. The Conservative Gaullists were opposed to a state-run healthcare system, while the Communists were supportive of a complete nationalisation of health care along a British Beveridge model.[*citation needed*]

The resulting programme is profession-based: all people working are required to pay a portion of their income to a not-for-profit health insurance fund, which mutualises the risk of illness, and which reimburses medical expenses at varying rates. Children and spouses of insured people are eligible for benefits, as well. Each fund is free to manage its own budget, and used to reimburse medical expenses at the rate it saw fit, however following a number of reforms in recent years, the majority of funds provide the same level of reimbursement and benefits.[*citation needed*]

The government has two responsibilities in this system.

- The first government responsibility is the fixing of the rate at which medical expenses should be negotiated, and it does so in two ways: The Ministry of Health directly negotiates prices of medicine with the manufacturers, based on the average price of sale observed in neighboring countries. A board of doctors and experts decides if the medicine provides a valuable enough medical benefit to be reimbursed (most medicine is reimbursed, including homeopathy). In parallel, the government fixes the reimbursement rate for medical services: this means that a doctor is free to charge the fee that he wishes for a consultation or an examination, but the social security system will only reimburse it at a pre-set rate. These tariffs are set annually through negotiation with doctors' representative organisations.
- The second government responsibility is oversight of the health-insurance funds, to ensure that they are correctly managing the sums they receive, and to ensure oversight of the public hospital network.

Today, this system is more or less intact. All citizens and legal foreign residents of France are covered by one of these mandatory programs, which continue to be funded by worker participation. However, since 1945, a number of major changes have been introduced. Firstly, the different health care funds (there are five: General, Independent, Agricultural, Student, Public Servants) now all reimburse at the same rate. Secondly, since 2000, the government now provides health care to those who are not covered by a mandatory regime (those who have never worked and who are not students, meaning the very rich or the very poor). This regime, unlike the worker-financed ones, is financed via general taxation and reimburses at a higher rate than the profession-based system for those who cannot afford to make up the difference. Finally, to counter the rise in health care costs, the government has installed two plans, (in 2004 and 2006), which require insured people to declare a referring doctor in order to be fully reimbursed for specialist visits, and which installed a mandatory co-pay of €1 for a doctor visit, €0.50 for each box of medicine prescribed, and a fee of €16–18 per day for hospital stays and for expensive procedures.[*citation needed*]

An important element of the French insurance system is solidarity: the more ill a person becomes, the less the person pays. This means that for people with serious or chronic illnesses, the insurance system reimburses them 100% of expenses, and waives their co-pay charges.[*citation needed*]

Finally, for fees that the mandatory system does not cover, there is a large range of private complementary insurance plans available. The market for these programs is very competitive, and often subsidised by the employer, which means that premiums are usually modest. 85% of French people benefit from complementary private health insurance.[24]

Germany

Germany has the world's oldest national social health insurance system,[25] with origins dating back to Otto von Bismarck's Sickness Insurance Law of 1883.[26][27]

Beginning with 10% of blue-collar workers in 1885, mandatory insurance has expanded; in 2009, insurance was made mandatory on all citizens, with private health insurance for the self-employed or above an income threshold.[28][29] As of 2016, 85% of the population is covered by the compulsory Statutory Health Insurance (SHI)[30] (*Gesetzliche Krankenversicherung* or *GKV*), with the remainder covered by private insurance (*Private Krankenversicherung* or *PKV*). Germany's health care system was 77% government-funded and 23% privately funded as of 2004.[31] While public health insurance contributions are based on the individual's income, private health insurance contributions are based on the individual's age and health condition.[28][32]

Reimbursement is on a fee-for-service basis, but the number of physicians allowed to accept Statutory Health Insurance in a given locale is regulated by the government and professional societies.[*citation needed*]

Co-payments were introduced in the 1980s in an attempt to prevent over utilization. The average length of hospital stay in Germany has decreased in recent years from 14 days to 9 days, still considerably longer than average stays in the United States (5 to 6 days).[33][34] Part of the difference is that the chief consideration for hospital reimbursement is the number of hospital days as opposed to procedures or diagnosis. Drug costs have increased substantially, rising nearly 60% from 1991 through 2005. Despite attempts to contain costs, overall health care expenditures rose to 10.7% of GDP in 2005, comparable to other western European nations, but substantially less than that spent in the U.S. (nearly 16% of GDP).[35]

Germans are offered three kinds of social security insurance dealing with the physical status of a person and which are co-financed by employer and employee: health insurance, accident insurance, and long-term care insurance. Long-term care insurance (*Gesetzliche Pflegeversicherung*) emerged in 1994 and is

mandatory.[29] Accident insurance (gesetzliche Unfallversicherung) is covered by the employer and basically covers all risks for commuting to work and at the workplace.[36]

Greece

The National Health System in Greece covers both out and in-patient treatment.[37] The out-patient treatment is carried out by social administrative structures as following:

- EOPPY (National Organization for the Provision of Health Services): contracted private healthcare providers
- PEDY (National Primary Healthcare Network) units: public healthcare
- State hospitals, rural and regional medical units, health centers of the ESY (National Health System)
- Private health professionals: Medical professionals and services not contracted with EOPYY.

The in-patient treatment is carried out by:

- State hospitals of the National Health System (ESY).
- Private Clinics contracted with the National Health Carrier (EOPYY)
- Private hospitals and clinics that are not contracted with the National Health Carrier.

In Greece anyone can cover the hospitalization expenses using a private insurance policy, that can be bought by any of the local or multinational insurance companies that operate in the region (e.g. Metlife, Interamerican, Aetna, IMG).[38]

India

In India, provision of health care services varies state-wise. Public health services are prominent in most of the states, but due to inadequate resources and management, major population opts for private health services.[*citation needed*]

To improve the awareness and better health care facilities, Insurance Regulatory and Development Authority of India and The General Corporation of India runs health care campaigns for the whole population. IN 2018, for under privileged citizens, Prime Minister Narendra Modi announced the launch of a new public health insurance fund called Ayushman Bharat Yojana and the government claims that the new system will try to reach more than 500 million people.[*citation needed*]

In India, Health insurance is offered mainly in two Types:

- **Indemnity Plan** basically covers the hospitalisation expenses and has subtypes like Individual Insurance, Family Floater Insurance, Senior Citizen Insurance, Maternity Insurance, Group Medical Insurance.
- **Fixed Benefit Plan** pays a fixed amount for pre-decided diseases like critical illness, cancer, heart disease, etc. It has also its sub types like Preventive Insurance, Critical illness and Personal Accident.

Depending on the type of insurance and the company providing health insurance, coverage includes pre-and post-hospitalisation charges, ambulance charges, day care charges, Health Checkups, etc.

It is pivotal to know about the exclusions which are not covered under insurance schemes:

- Treatment related to dental disease or surgeries
- All kind of STD's and AIDS
- Non-Allopathic Treatment

Few of the companies do provide insurance against such diseases or conditions, but that depends on the type and the insured amount.

Some important aspects to be considered before choosing the health insurance in India are Claim Settlement ratio, Insurance limits and Caps, Coverage and network hospitals.

Japan

There are three major types of insurance programs available in Japan: Employee Health Insurance Kenkō-Hoken), National Health Insurance (Kokumin-Kenkō-Hoken), and the Late-stage Elderly Medical System.[39] Although private health insurance is available, all Japanese citizens, permanent residents, and non-Japanese with a visa lasting one year or longer are required to be enrolled in either National Health Insurance or Employee Health Insurance. National Health Insurance is designed for those who are not eligible for any employment-based health insurance program. The Late-stage Elderly Medical System is designed for people who are age 75 and older.[*[[Health insurance#Japan#{{{section}}}|contradictory]]*][40]

National Health Insurance is organised on a household basis. Once a household has applied, the entire family is covered. Applicants receive a health insurance card, which must be used when receiving treatment at a hospital. There is a required monthly premium, but co-payments are standardized so payers are only expected to cover ten to thirty percent of the cost, depending on age.[41][*non-primary source needed*] If out-of-pocket costs exceed pre-determined limits, payers may apply for a rebate from the National Health Insurance program.[39]
Employee Health Insurance covers diseases, injuries, and death regardless of whether an incident occurred at a workplace. Employee Health Insurance covers a maximum of 180 days of medical care per year for work-related diseases or injuries and 180 days per year for other diseases or injuries. Employers and employees must contribute evenly to be covered by Employee Health Insurance.[42]
The Late-stage Elderly Medical System began in 1983 following the Health Care for the Aged Law of 1982. It allowed many health insurance systems to offer financial assistance to elderly people. There is a medical coverage fee. To be eligible, those insured must be either: older than 70, or older than 65 with a recognized disability.[*[[Health insurance#Japan#{{{section}}}|contradictory]]*] The Late-stage Elderly Medical System includes preventive and standard medical care.[42]
Due to Japan's aging population, the Late-stage Elderly Medical System represents one third of the country's total healthcare cost. When retiring employees shift from Employee Health Insurance to the Late-stage Elderly Medical System, the national cost of health insurance is expected to increase since individual healthcare costs tend to increase with age.[43]

Netherlands

In 2006, a new system of health insurance came into force in the Netherlands. This new system avoids the two pitfalls of adverse selection and moral hazard associated with traditional forms of health insurance by using a combination of regulation and insurance equalization pool. Moral hazard is avoided by mandating that insurance companies provide at least one policy that meets a government set minimum standard level of coverage, and all adult residents are obliged by law to purchase this coverage from an insurance company of their choice. All insurance companies receive funds from the equalization pool to help cover the cost of this government-mandated coverage. This pool is run by a regulator which collects salary-based contributions from employers, which make up about 50% of all health care funding, and funding from the government to cover people who cannot afford health care, which makes up an additional 5%.[44]
The remaining 45% of health care funding comes from insurance premiums paid by the public, for which companies compete on price, though the variation between the various competing insurers is only about 5%. However, insurance companies are free to sell additional policies to provide coverage beyond the national minimum. These policies do not receive funding from the equalization pool but cover additional treatments, such as dental procedures and physiotherapy, which are not paid for by the mandatory policy.[44]
Funding from the equalization pool is distributed to insurance companies for each person they insure under the required policy. However, high-risk individuals get more from the pool, and low-income persons and children under 18 have their insurance paid for entirely. Because of this, insurance companies no longer find insuring high-risk individuals an unappealing proposition, avoiding the potential problem of adverse selection.[*citation needed*]
Insurance companies are not allowed to have co-payments, caps, or deductibles, or deny coverage to any person applying for a policy, or charge anything other than their nationally set and published standard premiums. Therefore, every person buying insurance will pay the same price as everyone else buying the same policy, and every person will get at least the minimum level of coverage. This applies to all people permanently living and working in the Netherlands. International students that move to the Netherlands for study purposes have to take out compulsory Dutch health insurance if they also decide to work (zero-hour contracts included) or do a paid internship during their stay. In that case, they'll need to take out the compulsory basic package of Dutch health insurance. Additional insurance is optional, depending on the student's personal needs.[45][46]

New Zealand

Since 1974, New Zealand has had a system of universal no-fault health insurance for personal injuries through the Accident Compensation Corporation (ACC). The ACC scheme covers most of the costs of related to treatment of injuries acquired in New Zealand (including overseas visitors) regardless of how the injury occurred, and also covers lost income (at 80 percent of the employee's pre-injury income) and costs related to long-term rehabilitation, such as home and vehicle modifications for those seriously injured. Funding from the scheme comes from a combination of levies on employers' payroll (for work injuries), levies on an employee's taxable

income (for non-work injuries to salary earners), levies on vehicle licensing fees and petrol (for motor vehicle accidents), and funds from the general taxation pool (for non-work injuries to children, senior citizens, unemployed people, overseas visitors, etc.)

Rwanda

Rwanda is one of a handful of low income countries that has implemented community-based health insurance schemes in order to reduce the financial barriers that prevent poor people from seeking and receiving needed health services. This scheme has helped reach 90% of the country's population with health care coverage.[47][48]

Singapore

Singaporeans have one of the longest life expectancy at birth in the world. During this long life, encountering uncertain situations requiring hospitalization are inevitable. Health insurance or medical insurance cover high healthcare costs during hospitalization.[49]

Health insurance for Singapore Citizens and Permanent Residents

MediShield Life, is a universal health insurance covering all Singapore Citizens and Permanent Residents. MediShield Life covers hospitalization costs for a stay in ward B2 or C in a Public hospital. For the hospitalization in a private hospital, or in ward A or B1 in Public hospital, MediShield Life coverage is pegged to B2 or C ward prices and insured is required to pay the remaining bill amount. This remaining bill amount can be paid using MediSave but limits are applied on the MediSave usage. MediShield Life does not cover overseas medical expenses and the treatment of serious pre-existing illnesses for which one has been receiving treatment during the 12 months before the start of the MediShield Life coverage. MediShield Life also does not cover treatment of congenital anomalies (medical conditions that are present at birth), cosmetic surgery, pregnancy-related charges and mental illness.[50]

As the MediShield Life benefits are capped for B2 or C ward hospitalization in public hospitals, Integrated Shield plans provide coverage for the hospitalization in private hospitals, or ward A or B1 in public hospitals.[51] Integrated Shield insurance plans cover large hospitalization bills for Private hospitals or, ward A or B1.[51] However, insured is still required to pay a portion of the bill amount. This is in accordance with Singapore's healthcare philosophy which promotes personal responsibility with getting individuals to share the cost of healthcare. With this philosophy, deductible, co-insurance and peroration are applied on most of the Health Insurance plans in Singapore. Such health insurance plans provide an option to purchase a health insurance rider to cover these charges.[52]

Health insurance for Foreigners in Singapore

Unlike Singapore Citizens and Permanent Residents, Foreigners are not automatically covered by the MediShield Life. Foreigners can purchase the health insurance plans from several life insurers in Singapore.[52]

Switzerland

Healthcare in Switzerland is universal[53] and is regulated by the Swiss Federal Law on Health Insurance. Health insurance is compulsory for all persons residing in Switzerland (within three months of taking up residence or being born in the country).[54][55] It is therefore the same throughout the country and avoids double standards in healthcare. Insurers are required to offer this basic insurance to everyone, regardless of age or medical condition. They are not allowed to make a profit off this basic insurance, but can on supplemental plans.[53]

The universal compulsory coverage provides for treatment in case of illness or accident and pregnancy. Health insurance covers the costs of medical treatment, medication and hospitalization of the insured. However, the insured person pays part of the costs up to a maximum, which can vary based on the individually chosen plan, premiums are then adjusted accordingly. The whole healthcare system is geared towards to the general goals of enhancing general public health and reducing costs while encouraging individual responsibility.[*citation needed*]

The Swiss healthcare system is a combination of public, subsidized private and totally private systems. Insurance premiums vary from insurance company to company, the excess level individually chosen (*franchise*), the place of residence of the insured person and the degree of supplementary benefit coverage chosen (complementary medicine, routine dental care, semi-private or private ward hospitalization, etc.).[*citation needed*]

The insured person has full freedom of choice among the approximately 60 recognized healthcare providers competent to treat their condition (in their region) on the understanding that the costs are covered by the insurance up to the level of the official tariff. There is freedom of choice when selecting an insurance company to which one pays a premium, usually on a monthly basis. The insured person pays the insurance premium for

the basic plan up to 8% of their personal income. If a premium is higher than this, the government gives the insured person a cash subsidy to pay for any additional premium.
The compulsory insurance can be supplemented by private "complementary" insurance policies that allow for coverage of some of the treatment categories not covered by the basic insurance or to improve the standard of room and service in case of hospitalization. This can include complementary medicine, routine dental treatment and private ward hospitalization, which are not covered by the compulsory insurance.
As far as the compulsory health insurance is concerned, the insurance companies cannot set any conditions relating to age, sex or state of health for coverage. Although the level of premium can vary from one company to another, they must be identical within the same company for all insured persons of the same age group and region, regardless of sex or state of health. This does not apply to complementary insurance, where premiums are risk-based.
Switzerland has an infant mortality rate of about 3.6 out of 1,000. The general life expectancy in 2012 was for men 80.5 years compared to 84.7 years for women.[56] These are the world's best figures.[57]

United Kingdom

The UK's National Health Service (NHS) is a publicly funded healthcare system that provides coverage to everyone normally resident in the UK. It is not strictly an insurance system because (a) there are no premiums collected, (b) costs are not charged at the patient level and (c) costs are not pre-paid from a pool. However, it does achieve the main aim of insurance which is to spread financial risk arising from ill-health. The costs of running the NHS (est. £104 billion in 2007–8)[58] are met directly from general taxation. The NHS provides the majority of health care in the UK, including primary care, in-patient care, long-term health care, ophthalmology, and dentistry.
Private health care has continued parallel to the NHS, paid for largely by private insurance, but it is used by less than 8% of the population, and generally as a top-up to NHS services. There are many treatments that the private sector does not provide. For example, health insurance on pregnancy is generally not covered or covered with restricting clauses. Typical exclusions for Bupa schemes (and many other insurers) include:
aging, menopause and puberty; AIDS/HIV; allergies or allergic disorders; birth control, conception, sexual problems and sex changes; chronic conditions; complications from excluded or restricted conditions/ treatment; convalescence, rehabilitation and general nursing care ; cosmetic, reconstructive or weight loss treatment; deafness; dental/oral treatment (such as fillings, gum disease, jaw shrinkage, etc.); dialysis; drugs and dressings for out-patient or take-home use† ; experimental drugs and treatment; eyesight; HRT and bone densitometry; learning difficulties, behavioural and developmental problems; overseas treatment and repatriation; physical aids and devices; pre-existing or special conditions; pregnancy and childbirth; screening and preventive treatment; sleep problems and disorders; speech disorders; temporary relief of symptoms.[59] († = except in exceptional circumstances)
There are a number of other companies in the United Kingdom which include, among others, Chubb Limited, AXA, Aviva, Bupa, Groupama Healthcare, WPA and VitalityHealth. Similar exclusions apply, depending on the policy which is purchased.
In 2009, the main representative body of British Medical physicians, the British Medical Association, adopted a policy statement expressing concerns about developments in the health insurance market in the UK. In its Annual Representative Meeting which had been agreed earlier by the Consultants Policy Group (i.e. Senior physicians) stating that the BMA was "extremely concerned that the policies of some private healthcare insurance companies are preventing or restricting patients exercising choice about (i) the consultants who treat them; (ii) the hospital at which they are treated; (iii) making top up payments to cover any gap between the funding provided by their insurance company and the cost of their chosen private treatment." It went in to "call on the BMA to publicise these concerns so that patients are fully informed when making choices about private healthcare insurance."[60] The practice of insurance companies deciding which consultant a patient may see as opposed to GPs or patients is referred to as Open Referral.[61] The NHS offers patients a choice of hospitals and consultants and does not charge for its services.
The private sector has been used to increase NHS capacity despite a large proportion of the British public opposing such involvement.[62] According to the World Health Organization, government funding covered 86% of overall health care expenditures in the UK as of 2004, with private expenditures covering the remaining 14%.[31]

Nearly one in three patients receiving NHS hospital treatment is privately insured and could have the cost paid for by their insurer. Some private schemes provide cash payments to patients who opt for NHS treatment, to deter use of private facilities. A report, by private health analysts Laing and Buisson, in November 2012, estimated that more than 250,000 operations were performed on patients with private medical insurance each year at a cost of £359 million. In addition, £609 million was spent on emergency medical or surgical treatment. Private medical insurance does not normally cover emergency treatment but subsequent recovery could be paid for if the patient were moved into a private patient unit.[63]

United States

Short Term Health Insurance

On the 1st of August, 2018 the DHHS issued a final rule which made federal changes to Short-Term, Limited-Duration Health Insurance (STLDI) which lengthened the maximum contract term to 364 days and renewal for up to 36 months.[64][65] This new rule, in combination with the expiration of the penalty for the Individual Mandate of the Affordable Care Act,[66] has been the subject of independent analysis.[67][68][69][70][71][72][73][74]

The United States health care system relies heavily on private health insurance, which is the primary source of coverage for most Americans. As of 2018, 68.9% of American adults had private health insurance, according to The Center for Disease Control and Prevention.[75] The Agency for Healthcare Research and Quality (AHRQ) found that in 2011, private insurance was billed for 12.2 million U.S. inpatient hospital stays and incurred approximately $112.5 billion in aggregate inpatient hospital costs (29% of the total national aggregate costs).[76] Public programs provide the primary source of coverage for most senior citizens and for low-income children and families who meet certain eligibility requirements. The primary public programs are Medicare, a federal social insurance program for seniors and certain disabled individuals; and Medicaid, funded jointly by the federal government and states but administered at the state level, which covers certain very low income children and their families. Together, Medicare and Medicaid accounted for approximately 63 percent of the national inpatient hospital costs in 2011.[76] SCHIP is a federal-state partnership that serves certain children and families who do not qualify for Medicaid but who cannot afford private coverage. Other public programs include military health benefits provided through TRICARE and the Veterans Health Administration and benefits provided through the Indian Health Service. Some states have additional programs for low-income individuals.[77]

In the late 1990s and early 2000s, health advocacy companies began to appear to help patients deal with the complexities of the healthcare system. The complexity of the healthcare system has resulted in a variety of problems for the American public. A study found that 62 percent of persons declaring bankruptcy in 2007 had unpaid medical expenses of $1000 or more, and in 92% of these cases the medical debts exceeded $5000. Nearly 80 percent who filed for bankruptcy had health insurance.[78] The Medicare and Medicaid programs were estimated to soon account for 50 percent of all national health spending.[79] These factors and many others fueled interest in an overhaul of the health care system in the United States. In 2010 President Obama signed into law the Patient Protection and Affordable Care Act. This Act includes an 'individual mandate' that every American must have medical insurance (or pay a fine). Health policy experts such as David Cutler and Jonathan Gruber, as well as the American medical insurance lobby group America's Health Insurance Plans, argued this provision was required in order to provide "guaranteed issue" and a "community rating," which address unpopular features of America's health insurance system such as premium weightings, exclusions for pre-existing conditions, and the pre-screening of insurance applicants. During 26–28 March, the Supreme Court heard arguments regarding the validity of the Act. The Patient Protection and Affordable Care Act was determined to be constitutional on 28 June 2012. The Supreme Court determined that Congress had the authority to apply the individual mandate within its taxing powers.[80]

History and evolution

In the late 19th century, "accident insurance" began to be available, which operated much like modern disability insurance.[81][82] This payment model continued until the start of the 20th century in some jurisdictions (like California), where all laws regulating health insurance actually referred to disability insurance.[83]

Accident insurance was first offered in the United States by the Franklin Health Assurance Company of Massachusetts. This firm, founded in 1850, offered insurance against injuries arising from railroad and steamboat accidents. Sixty organizations were offering accident insurance in the U.S. by 1866, but the industry

consolidated rapidly soon thereafter. While there were earlier experiments, the origins of sickness coverage in the U.S. effectively date from 1890. The first employer-sponsored group disability policy was issued in 1911.[84] Before the development of medical expense insurance, patients were expected to pay health care costs out of their own pockets, under what is known as the fee-for-service business model. During the middle-to-late 20th century, traditional disability insurance evolved into modern health insurance programs. One major obstacle to this development was that early forms of comprehensive health insurance were enjoined by courts for violating the traditional ban on corporate practice of the professions by for-profit corporations.[85] State legislatures had to intervene and expressly legalize health insurance as an exception to that traditional rule. Today, most comprehensive private health insurance programs cover the cost of routine, preventive, and emergency health care procedures. They also cover or partially cover the cost of certain prescription and over-the-counter drugs. Insurance companies determine what drugs are covered based on price, availability, and therapeutic equivalents. The list of drugs that an insurance program agrees to cover is called a formulary.[7] Additionally, some prescriptions drugs may require a prior authorization[86] before an insurance program agrees to cover its cost.

Hospital and medical expense policies were introduced during the first half of the 20th century. During the 1920s, individual hospitals began offering services to individuals on a pre-paid basis, eventually leading to the development of Blue Cross organizations.[84] The predecessors of today's Health Maintenance Organizations (HMOs) originated beginning in 1929, through the 1930s and on during World War II.[87][88]

The Employee Retirement Income Security Act of 1974 (ERISA) regulated the operation of a health benefit plan if an employer chooses to establish one, which is not required. The Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) gives an ex-employee the right to continue coverage under an employer-sponsored group health benefit plan.

Through the 1990s, managed care insurance schemes including health maintenance organizations (HMO), preferred provider organizations, or point of service plans grew from about 25% US employees with employer-sponsored coverage to the vast majority.[89] With managed care, insurers use various techniques to address costs and improve quality, including negotiation of prices ("in-network" providers), utilization management, and requirements for quality assurance such as being accredited by accreditation schemes such as the Joint Commission and the American Accreditation Healthcare Commission.[90]

Employers and employees may have some choice in the details of plans, including health savings accounts, deductible, and coinsurance. As of 2015, a trend has emerged for employers to offer high-deductible plans, called consumer-driven healthcare plans which place more costs on employees, while employees benefit by paying lower monthly premiums. Additionally, having a high-deductible plan allows employees to open a health savings account, which allows them to contribute pre-tax savings towards future medical needs. Some employers will offer multiple plans to their employees.[91]

Russia

The private health insurance market, known in Russian as "voluntary health insurance" (Russian: добровольное медицинское страхование, ДМС) to distinguish it from state-sponsored Mandatory Medical Insurance, has experienced sustained levels of growth.[92] It was introduced in October 1992.[93]

Taiwan

Yorum

Ülkemizde sağlık sigortalaması: Bu Ülkede her bireyin sigortalı olması veya olmamasına bakılmadan yaklaşımlar yapılmaktadır.

Özel sağlık sigortası özel hastane ve imkanlardan ücretsiz yararlanmak açısından öngörülmektedir.

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Ücretlendirme: Bir işlem yapıldıktan sonra işlem Devlete fatura edilir ve buradan ücret ödenir. Kısaca yapılan işlem bedava değil, devletin ödeneği kapsamındadır.

NEONATOLOJİ AÇISINDAN: Özel olmadıkça her türlü gebelik, doğum ve Yenidoğan yaklaşımları ücretsizdir. Yoğun Bakımlarda da ücret alınmamaktadır.

Sağlık Ekonomisi

Ekonomi klasik anlamda ucuz diye akılda kalmaktadır. Ancak İngiliz yaklaşımı olarak, ben ucuz malı alacak kadar zengin değilim tanımlaması da vardır. Zamanımızda ben önemli değerlendirme kriteri, memnuniyet parametresidir.

İstediğiniz işlevde elde edilen memnuniyet parametresidir.
Bunlar:
1)—Etkinlik/Effectivity:
2)—Verimlilik/Efficiency
3)—Bulunabilir, kullanılabilir olmak/Eligibility
Tüm bunlar için kaliteli olması, tekrar kullanmak isteği ile memnun olmasıdır.
Bunun için genellikle 5 yıldız değerlendirmesi öngörülür. 3 yıldız tatmin edici, 4 yıldız önerilir, 5 yıldız mükemmel işleve yarıyor demektir.

Sağlıkta bu boyutların olmaması veya dikkate alınması, suç tanımlamasına girer. Bir organizasyon en idealini yapmalı, yapamıyorsa sevk etmelidir. Kısaca 5 yıldız altı kabul edilemez.

Ekonomi geniş, gerçek bilimsel değil, burada sıklıkla kastedilen kim ödüyor anlamında kullanılmaktadır. Bu da Devlet ödemeli, refah payı isteniyorsa bu kişi ödemelidir.
Burada da sigortalama yapısı gündeme getirilebilir.

Health economics, Wikipedia[12]

Health economics is a branch of economics concerned with issues related to efficiency, effectiveness, value and behavior in the production and consumption of health and healthcare. Health economics is important in determining how to improve health outcomes and lifestyle patterns through interactions between individuals, healthcare providers and clinical settings.[2] In broad terms, health economists study the functioning of healthcare systems and health-affecting behaviors such as smoking, diabetes, and obesity.
One of the biggest difficulties regarding healthcare economics is that it does not follow normal rules for economics. Price and Quality are often hidden by the third-party payer system of insurance companies and employers. Additionally, QALY (Quality Adjusted Life Years), one of the most commonly used measurements for treatments, is very difficult to measure and relies upon assumptions that are often unreasonable.[3]
A seminal 1963 article by Kenneth Arrow is often credited with giving rise to health economics as a discipline. His theory drew conceptual distinctions between health and other goods.[4] Factors that distinguish health economics from other areas include extensive government intervention, intractable uncertainty in several dimensions, asymmetric information, barriers to entry, externality and the presence of a third-party agent.[5] In healthcare, the third-party agent is the patient's health insurer, who is financially responsible for the healthcare goods and services consumed by the insured patient.
Health economists evaluate multiple types of financial information: costs, charges and expenditures.
Uncertainty is intrinsic to health, both in patient outcomes and financial concerns. The knowledge gap that exists between a physician and a patient creates a situation of distinct advantage for the physician, which is called *asymmetric information*.
Externalities arise frequently when considering health and health care, notably in the context of the health impacts as with infectious disease or opioid abuse. For example, making an effort to avoid catching the common cold affects people other than the decision maker[6][7][8]: vii–xi[9] or finding sustainable, humane and effective solutions to the opioid epidemic.
Scope

The scope of health economics is neatly encapsulated by Alan Williams' "plumbing diagram"[10] dividing the discipline into eight distinct topics:

- What influences health? (other than healthcare)
- What is health and what is its value?
- The demand for healthcare
- The supply of healthcare
- Micro-economic evaluation at treatment level
- Market equilibrium
- Evaluation at whole system level
- Planning, budgeting and monitoring mechanisms.

The development of health economics

In the third century BC, Aristotle, an ancient Greek thinker, once talked about the relationship between farmers and doctors in production and exchange.[11] In the 17th century, William Petty, a British classical economist, pointed out that the medical and health expenses spent on workers would bring economic benefits.

Presently, contemporary health economics stands as a prominent interdisciplinary field, connecting economic theory with healthcare practice; its diverse sub-disciplines and research domains are evident. The academic roots of this knowledge are commonly traced back to the U.S. tradition.[12]

The American Medical Association (AMA) was created in 1848, having as main goals scientific advancement, creation of standards for medical education, launching a program of medical ethics, and obtaining improved public health. Yet, it was only in 1931 that economic concerns came to the agenda, with the creation of the AMA Bureau of Medical Economics, established to study all economic matters affecting the medical profession.[13]

After the Second World War, amid the rapid improvement of the level of medical research technology, the modernization of diagnosis and treatment means and health facilities and equipment, the aging of the population, the sharp increase of chronic diseases, and the improvement of people's demand for health care and other reasons, medical and health expenses increased significantly. For example, total U.S. health expenditures steadily increased as a share of gross domestic product (GDP), demonstrating the increased importance that society placed on health care relative to other non-health goods and services. Between 1960 and 2013, health spending as a share of GDP increased from 5.0 to 17.4 percent. Over the same period, the average annual growth in nominal national health expenditures was 9.2 percent compared to nominal GDP growth of 6.7 percent.[14]

At the same time, the expenditure on health care in many European countries also increased, accounting for about 4% of GDP in the 1950s and 8% by the end of the 1970s. In terms of growth rate, the proportion of health care expenditure in GNP (gross national product) in many countries increased by 1% in the 1950s, 1.5% in the 1960s, and 2% in the 1970s. This high medical and health expenditure was a heavy economic burden on government, business owners, workers, and families, which required a way to restrain its growth.[15]

In addition, the scale of health service increased, technical equipment became more advanced, and division of labor and specialization saw increases, too. The medical and health service developed into a "healthcare industry" which occupies a considerable amount of capital and labor and occupies an important position in social and economic life. The research on economic problems of the health sector became an important topic of economic research.[16]

Selma Muskin published "Towards the definition of health economics" in 1958 and, four years later, the paper, "Health as an Investment." At that time, health was broadly regarded as rather a consumptive branch of the economy. Muhkin's analysis was the first understanding that health investment had long-term beneficial consequences for the community. Probably, the single most famous and cited contribution to the discipline was Kenneth Arrow's "Uncertainty and the welfare economics of medical care," published in 1963.[12][17]

After the 1960s, research in health economics developed further, and a second academic seminar on health economics was held in the United States in 1962 followed by a third in 1968. In 1968, the World Health Organization held its first international health economics seminar in Moscow. The convening of the three meetings showed that health economics had boarded an academic forum as an independent discipline, which also marked the official formation of health economics.[18]

After the 1970s, the health economy entered a period of rapid development and nursing economics gradually emerged. In 1979, Paul Feldstein, a famous American health economist, first used the principles of economics

to discuss the long-term care market, registered market, and other nursing economy issues, laying the foundation for the emergence of nursing economics.[19]

In 1983, Nursing Economic Magazine was founded in the United States, and its main research content included nursing market development, nursing cost accounting, policies related to nursing services, nursing economic management, etc. The magazine's publication was a mark of the formal formation of nursing economics. In 1993, The University of Iowa Cost Research Center conducted a systematic nursing cost study, simply the NIC System. The specific practice consisted of establishing a special research institution equipped with full-time researchers, sorting out the nursing cost accounting content, and, finally, identifying 433 items in 6 categories. At the same time, the Center adopted computer technology to carry out nursing cost management, including cost assessment, reasonable budget, decision making, etc., which played a crucial role in improving the efficiency of nursing management and alleviating the nursing management crisis.[20]

Healthcare demand

The demand for healthcare is a derived demand from the demand for health. Healthcare is demanded as a means for consumers to achieve a larger stock of "health capital." The demand for health is unlike most other goods because individuals allocate resources in order to both consume and produce health.

The above description gives three roles of persons in health economics. The World Health Report (p. 52) states that people take four roles in healthcare:

1. Contributors
2. Citizens
3. Provider
4. Consumers

Michael Grossman's 1972 model of health production[21] has been extremely influential in this field of study and has several unique elements that make it notable. Grossman's model views each individual as both a producer and a consumer of health. Health is treated as a stock which degrades over time in the absence of "investments" in health, so that health is viewed as a sort of capital. The model acknowledges that health is both a consumption good that yields direct satisfaction and utility, and an investment good, which yields satisfaction to consumers indirectly through fewer sick days. Investment in health is costly as consumers must trade off time and resources devoted to health, such as exercising at a local gym, against other goals. These factors are used to determine the optimal level of health that an individual will demand. The model makes predictions over the effects of changes in prices of healthcare and other goods, labour market outcomes such as employment and wages, and technological changes. These predictions and other predictions from models extending Grossman's 1972 paper form the basis of much of the econometric research conducted by health economists.

In Grossman's model, the optimal level of investment in health occurs where the marginal cost of health capital is equal to the marginal benefit. With the passing of time, health depreciates at some rate . The interest rate faced by the consumer is denoted by . The marginal cost of health capital can be found by adding these variables: . The marginal benefit of health capital is the rate of return from this capital in both market and non-market sectors. In this model, the optimal health stock can be impacted by factors like age, wages and education. As an example, increases with age, so it becomes more and more costly to attain the same level of health capital or health stock as one age. Age also decreases the marginal benefit of health stock. The optimal health stock will therefore decrease as one ages.

Beyond issues of the fundamental, "real" demand for medical care derived from the desire to have good health (and thus influenced by the production function for health) is the important distinction between the "marginal benefit" of medical care (which is always associated with this "real demand" curve based on derived demand), and a separate "effective demand" curve, which summarizes the amount of medical care demanded at particular market prices. Because most medical care is not purchased from providers directly, but is rather obtained at subsidized prices due to insurance, the out-of-pocket prices faced by consumers are typically much lower than the market price. The consumer sets out of pocket, and so the "effective demand" will have a separate relationship between price and quantity than will the "marginal benefit curve" or real demand relationship. This distinction is often described under the rubric of "ex-post moral hazard" (which is again distinct from ex-ante moral hazard, which is found in any type of market with insurance).

Health technology assessment

Economic evaluation, and in particular cost-effectiveness analysis, has become a fundamental part of technology appraisal processes for agencies in a number of countries. The Institute for Quality and Economy in Health Services (Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen – IQWiG) in Germany and the National Institute for Health and Care Excellence (NICE) in the United Kingdom, for example, both consider the cost-effectiveness of new pharmaceuticals entering the market.

Some agencies, including NICE, recommend the use of cost–utility analysis (CUA). This approach measures outcomes in a composite metric of both length and quality of life, the Quality-adjusted life year (QALY).

Healthcare markets

The five health markets typically analyzed are:

- Healthcare financing market
- Physician and nurses services market
- Institutional services market
- Input factors markets
- Professional education market

Although assumptions of textbook models of economic markets apply reasonably well to healthcare markets, there are important deviations. Many states have created risk pools in which relatively healthy enrollees subsidise the care of the rest. Insurers must cope with adverse selection which occurs when they are unable to fully predict the medical expenses of enrollees; adverse selection can destroy the risk pool. Features of insurance market risk pools, such as group purchases, preferential selection ("cherry-picking"), and preexisting condition exclusions are meant to cope with adverse selection.

Insured patients are naturally less concerned about healthcare costs than they would if they paid the full price of care. The resulting moral hazard drives up costs, as shown by the famous RAND Health Insurance Experiment. Insurers use several techniques to limit the costs of moral hazard, including imposing copayments on patients and limiting physician incentives to provide costly care. Insurers often compete by their choice of service offerings, cost-sharing requirements, and limitations on physicians.

Consumers in healthcare markets often lack adequate information about what services they need to buy and which providers offer the best value proposition. Health economists have documented a problem with supplier induced demand, whereby providers base treatment recommendations on economic, rather than medical criteria. Researchers have also documented substantial "practice variations", whereby the treatment also on service availability to rein in inducement and practice variations.

Some economists argue that requiring doctors to have a medical license constrains inputs, inhibits innovation, and increases cost to consumers while largely only benefiting the doctors themselves.[22]

Economic Rationale for Government Intervention in the Healthcare Markets

Folland, Godman, and Stino the authors of the book, The Economics of Health and Health Care[24] lists several separate and independent reasons for governments intervening in health-care systems rather than leaving it to the private market forces.

1. The first is to ensure that the optimum level of production and consumption of public goods (hospitals, vaccines) and goods with a partially public character are available.

2. Secondly, the rationale is to increase the quality and equity of insurance for those services that can be produced in the private sector but require risk-sharing due to the expense and uncertainties about needs. For example; investing in research and development for new cures and health care equipment. Governments usually subsidize for those who cannot afford insurance or, in certain situations, those low-cost activities and facilities that non-poor citizens can afford on their own. For example; the largest health insurance scheme in the world was launched in India by the name Ayushman Bharat in 2018.[25]

3. The third reason for which the government might want to intervene is to prevent market failure.[26] A classic example of market failure is Monopoly Power. Several health-care markets tend to have the potential for monopoly control to be exercised. Medical care in markets with few hospitals, patent-protected prescription products, and some health insurance markets is the major reason for higher costs and especially in cases where the providers are private companies.[27]

4. Knowledge can be perceived as a public good with a strong economic value. The information provided by one user does not restrict the information available to another. While those who do not pay are often denied access to information and the marginal cost of providing information to another person is frequently low. As a result,

one might argue that private markets would under-produce knowledge, necessitating government intervention to increase its availability. Government intervention, in this case, can be seen as assisting in the public distribution of established information, either directly or by subsidizing private sector operations.

5. The last point in this section is related to incomplete markets. Incomplete markets may arise when private markets struggle to satisfy existing demand. This situation can arise when the cure of disease is very expensive, such as cancer or a wide spread of new diseases such as HIV/AIDS or COVID-19. In such cases either private insurers require a high premium as the risk factor and costs are high or they may not insure the people for a particular case. This leads to a void in the market where a certain section of the population will not be able to afford healthcare. Certain insurance markets, such as those for patients with HIV/AIDS, cancer, or other pre-existing conditions who are searching for new coverage, may be incomplete in the sense that those patients may be unable to afford coverage at any price. In such cases, the government usually intervenes and provides health care for such cases. For example, during the COVID-19 pandemic, no private insurance company predicted (or could have predicted) that such an outbreak would occur; as a result, state intervention became necessary to treat people.

Public and private spending

Expand the OECD charts below to see the breakdown:

- "Government/compulsory": Government spending and compulsory health insurance.
- "Voluntary": Voluntary health insurance and private funds such as households' out-of-pocket payments, NGOs and private corporations.
- They are represented by columns starting at zero. They are not stacked. The 2 are combined to get the total.
- At the source you can run your cursor over the columns to get the year and the total for that country.[28]
- Click the table tab at the source to get 3 lists (one after another) of amounts by country: "Total", "Government/compulsory", and "Voluntary".[28]

Other issues

Medical economics

Often used synonymously with health economics, *medical economics*, according to Culyer,[29] is the branch of economics concerned with the application of economic theory to phenomena and problems associated typically with the second and third health market outlined above: physician and institutional service providers. Typically, however, it pertains to cost–benefit analysis of pharmaceutical products and cost-effectiveness of various medical treatments. Medical economics often uses mathematical models to synthesise data from biostatistics and epidemiology for support of medical decision-making, both for individuals and for wider health policy.

Mental health economics

Mental health economics incorporates a vast array of subject matters, ranging from pharmacoeconomics to labor economics and welfare economics. Mental health can be directly related to economics by the potential of affected individuals to contribute as human capital. In 2009 Currie and Stabile published "Mental Health in Childhood and Human Capital" in which they assessed how common childhood mental health problems may alter the human capital accumulation of affected children.[30] Externalities may include the influence that affected individuals have on surrounding human capital, such as at the workplace or in the home.[31] In turn, the economy also affects the individual, particularly in light of globalization. For example, studies in India, where there is an increasingly high occurrence of western outsourcing, have demonstrated a growing hybrid identity in young professionals who face very different sociocultural expectations at the workplace and in at home.[32]

Mental health economics presents a unique set of challenges to researchers. Individuals with cognitive disabilities may not be able to communicate preferences. These factors represent challenges in terms of placing value on the mental health status of an individual, especially in relation to the individual's potential as human capital. Further, employment statistics are often used in mental health economic studies as a means of evaluating individual productivity; however, these statistics do not capture "presenteeism", when an individual is at work with a lowered productivity level, quantify the loss of non-paid working time, or capture externalities such as having an affected family member. Also, considering the variation in global wage rates or in societal

values, statistics used may be contextually, geographically confined, and study results may not be internationally applicable.[31]

Though studies have demonstrated mental healthcare to reduce overall healthcare costs, demonstrate efficacy, and reduce employee absenteeism while improving employee functioning, the availability of comprehensive mental health services is in decline. Petrasek and Rapin (2002) cite the three main reasons for this decline as (1) stigma and privacy concerns, (2) the difficulty of quantifying medical savings and (3) physician incentive to medicate without specialist referral.[33] Evers et al. (2009) have suggested that improvements could be made by promoting more active dissemination of mental health economic analysis, building partnerships through policy-makers and researchers, and employing greater use of knowledge brokers.[31]

Health and Utility

Generally, economists assume that individuals act rationally with the aim of maximizing their lifetime utility, while all are subject to the fact that they cannot buy more than their resources allow. However, this model gets complex as there exists the uncertainty over individuals' lifetime. As such, we should split the issue into two parts: 1. How does health produce utility and 2. What affects health (e.g., medical care and life-style choices).[34]

Probably the most fundamental thing in consumer demand theory is that the good increases an individual's utility. Health is not really a good in the traditional sense, but health in itself produces happiness. We can think of health as a durable good, much like for instance a car, a house or an education. We all come into the world with some inherent "stock" of health, and a healthy baby has a fairly high stock of health. Basically, every decision we take during our lifetime will affect our stock of health.[34]

Consider X as a bundle of other goods, and H, as a stock of health. With this in mind we can get the formula for an individual's utility as: *Utility = U(X, H).* For simplicity, continue to think the stock of health produces utility, but technically, it is the flow of services created by the stock of health that produces utility. As the traditional fashion for goods, "more is better", in other words an increase in health leads to an increase in utility. With this in mind it seems logical that X grows with health, for instance it is more enjoyable to visit the zoo when not experiencing a headache.[34]

Like other durable goods, the stock of health wears out over time, much like other durable goods. This process can be called aging. When our stock of health has dropped low enough, we will lose our ability to function. We can say, in economic terminology that the stock of health depreciates. Since life expectancy has risen a lot during this century, it implies that e.g., the depreciation rate has decreased during this time. Public-health care efforts and individual medical care are in place to restore the stock of health or to decrease the depreciation rate on the stock of health. If we were to plot an individual's stock of health throughout its lifetime in a graph, it would steadily increase in the beginning during its childhood, and after that gradually decline because of aging, meanwhile sudden drops created by random events, such as injury or illness.[34]

There are many other things than "random" health care events, which individuals consume or do during their lives that affect the speed of aging and the severity and frequency of the drops. Lifestyle choices can deeply better or worse our health. If we go back to X, the bundle of goods and services, can undertake numerous characteristics, some add value while others noticeably decrease our stock of health. Outstanding among such lifestyle choices are the decision to consume alcohol, smoke tobacco, use drugs, composition of diet, amount of exercise and so on. Not only can X and H work as substitutes for one another in producing utility, but X can also affect H in a production sense as well. X can then be split into different categories depending on which effect it has on H, for instance "good" types (e.g., moderate exercise), "bad" types (e.g., food with high cholesterol) and "neutral" types (e.g., concerts and books). Neutral goods do not have an apparent effect on individuals' health.[34]

Yorum

Sağlıkta Ekonomi Olmaz. Burada belirtilenler bir yaklaşımların farklı olabilmesi olası gibi ele alınmasına neden olabilir. Gerçekte ise gereken maddi duruma bakılmadan yapılmalıdır. Helikopter veya uçak ile işlemler yapılmalıdır.

Covid-19 nedeni ile Avrupa'dan entübe hastaların uçak ile geldiği, yüz-bin civarında olduğu da ifade edilmektedir.

Ekonomi esasları: 1) Etkinlik, 2) Verimlilik, 3) Uygulanabilir, bulunabilir olması, 4) Memnuniyet yaratması olarak belirtilebilir.
Sağlıkta bunlardan birisinin gerektiği kadar ve yerinde yapılmaması suçtur. Yok ise sevk edilir, hekim ve gerekirse helikopter kullanılarak yapılır. Her hastanenin bir helikopter pisti doğal yapılmaktadır, bu kullanılır.

Sağlıkta Etik ilkeleşme, Sağlık Felsefesi

Hukuk Haklar anlamındadır. Temel olan yapı, suç ve cezaların tanımlanmasında kullanılır. Suç dışındaki yaklaşımlar bireyin inisiyatifi ve kararı çerçevesindedir. Türk Ceza Kanunu düzenlemelere uymamayı suç niteliği olarak görmemektedir.

Doğru nedir sorgusunda Tıbbi işlemlerde yapılana göre Uluslarası uzmanlar tarafından bir çizelge, bir uygulama yaklaşımı tanımlanmaktadır. Ne yapmalıyım denildiğinde de bazı ilkeler belirtilmektedir. Bunlara Etik ilkeler demekteyiz.

Ahlak kavramında toplumun, kültürün değerleri olup, bir kalıp ve kural zinciri sunulmaktadır. İslam dini temelde Kuran olması gerekirken, her toplum kendi düşüncelerini bu kapsamda eklemeye çalışmıştır. Kuran senin dinin sana, benimki bana diyerek, sorgulamayı bile kaldırmış, kim olursa olsun, bağımsız olduğu, sadece eylemlere göre irdeleneceği, yargılanma içinde bir suç, zarar ve zulüm unsuru olmalıdır. Çünkü zorlamada yasaktır.

Etik, kabaca doğru nedir, bir eylemde çizilmiş boyutlar temelinde bakarak, buna göre birey hastanın kişiliği ve hürmet boyutu ile ne yapmalıyım demelidir.

Zararımız dokunmamalı ilk kural olarak (Primum non no cere) olmasına karşın, niye bu çerçeveden düşünelim, kişinin iyiliği, gelişmesi ve ilerlemesi amaç ve güdü ise, sadece rıza şartı olduğu için, başka yönde düşünce geliştirilmemelidir.

Etik konusu makalenin sonunda irdelenecektir. Burada sadece konu ile ilgili irdeleme yapılmaktadır.

Health equity, Wikipedia[13]

Health equity arises from access to the social determinants of health, specifically from wealth, power and prestige.[1] Individuals who have consistently been deprived of these three determinants are significantly disadvantaged from health inequities, and face worse health outcomes than those who are able to access certain resources.[2][1] It is not equity to simply provide every individual with the same resources; that would be equality. In order to achieve health equity, resources must be allocated based on an individual need-based principle.[1]
According to the World Health Organization, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".[3] The quality of health and how health is distributed among economic and social status in a society can provide insight into the level of development within that society.[4] Health is a basic human right and human need, and all human rights are interconnected. Thus, health must be discussed along with all other basic human rights.[1]
Health equity is defined by the CDC as "the state in which everyone has a fair and just opportunity to attain their highest level of health".[5] It is closely associated with the social justice movement, with good health considered a fundamental human right. These inequities may include differences in the "presence of disease, health outcomes, or access to health care"[6]:3 between populations with a different race, ethnicity, gender, sexual orientation, disability, or socioeconomic status.[7][8]

Health inequity differs from health inequality in that the latter term is used in a number of countries to refer to those instances whereby the health of two demographic groups (not necessarily ethnic or racial groups) differs despite similar access to health care services. It can be further described as differences in health that are avoidable, unfair, and unjust, and cannot be explained by natural causes, such as biology, or differences in choice.[9] Thus, if one population dies younger than another because of genetic differences, a non-remediable/controllable factor, we tend to say that there is a health inequality. Conversely, if a population has a lower life expectancy due to lack of access to medications, the situation would be classified as a health inequity.[10] These inequities may include differences in the "presence of disease, health outcomes, or access to health care". Although it is important to recognize the difference in health equity and equality, having equality in health is essential to begin achieving health equity.[1] The importance of equitable access to healthcare has been cited as crucial to achieving many of the Millennium Development Goals.[11]

Socioeconomic status

Socioeconomic status is both a strong predictor of health,[12] and a key factor underlying health inequities across populations. Poor socioeconomic status has the capacity to profoundly limit the capabilities of an individual or population, manifesting itself through deficiencies in both financial and social capital.[13] It is clear how a lack of financial capital can compromise the capacity to maintain good health. In the UK, prior to the institution of the NHS reforms in the early 2000s, it was shown that income was an important determinant of access to healthcare resources.[14] Because one's job or career is a primary conduit for both financial and social capital, work is an important, yet under represented, factor in health inequities research and prevention efforts.[15][16] There are many ways that a job can affect one's health, such as the job's physical demands, exposure to hazards, mechanisms of employment, compensation and benefits, and availability of health and safety programs.[15] In addition, those who are in steady jobs are less likely to face poverty and its implications and more likely to have access to health care. Maintenance of good health through the utilization of proper healthcare resources can be quite costly and therefore unaffordable to certain populations.[17][18][19]

In China, for instance, the collapse of the Cooperative Medical System left many of the rural poor uninsured and unable to access the resources necessary to maintain good health.[20] Increases in the cost of medical treatment made healthcare increasingly unaffordable for these populations. This issue was further perpetuated by the rising income inequality in the Chinese population. Poor Chinese were often unable to undergo necessary hospitalization and failed to complete treatment regimens, resulting in poorer health outcomes.[21]

Similarly, in Tanzania, it was demonstrated that wealthier families were far more likely to bring their children to a healthcare provider: a significant step towards stronger healthcare.[22] Some scholars have noted that unequal income distribution itself can be a cause of poorer health for a society as a result of "underinvestment in social goods, such as public education and health care; disruption of social cohesion and the erosion of social capital".[19]

The role of socioeconomic status in health equity extends beyond simple monetary restrictions on an individual's purchasing power. In fact, social capital plays a significant role in the health of individuals and their communities. It has been shown that those who are better connected to the resources provided by the individuals and communities around them (those with more social capital) live longer lives.[23] The segregation of communities on the basis of income occurs in nations worldwide and has a significant impact on quality of health as a result of a decrease in social capital for those trapped in poor neighborhoods.[17][24][25][26][27] Social interventions, which seek to improve healthcare by enhancing the social resources of a community, are therefore an effective component of campaigns to improve a community's health. A 1998 epidemiological study showed that community healthcare approaches fared far better than individual approaches in the prevention of heart disease mortality.[28]

Unconditional cash transfers for reducing poverty used by some programs in the developing world appear to lead to a reduction in the likelihood of being sick.[29] Such evidence can guide resource allocations to effective interventions.

Research has shown that the quality of health care does indeed vary among different socioeconomic groups.[30] Children in families of low socioeconomic status are the most susceptible to health inequities. *Equity, Social Determinants and Public Health Programmes* (2010) is a book edited by Blas and Sivasankara that includes a chapter discussing health equities among children.[31] Gathering information from 100 international surveys, this chapter states that children in poor families under 5 years of age are likely to face health disparities because

the quality of their health depends on others providing for them; young children are not capable of maintaining good health on their own. In addition, these children have higher mortality rates than those in richer families due to malnutrition. Because of their low socioeconomic status, receiving health care can be challenging. Children in poor families are less likely to receive health care in general, and if they do have access to care, it is likely that the quality of that care is not highly sufficient.[31]

Education

Education is an important factor in healthcare utilization, though it is closely intertwined with economic status. An individual may not go to a medical professional or seek care if they do not know the ills of their failure to do so, or the value of proper treatment.[32] In Tajikistan, since the nation gained its independence, the likelihood of giving birth at home has increased rapidly among women with lower educational status. Education also has a significant impact on the quality of prenatal and maternal healthcare. Mothers with primary education consulted a doctor during pregnancy at significantly lower rates (72%) when compared to those with a secondary education (77%), technical training (88%) or a higher education (100%).[33] There is also evidence for a correlation between socioeconomic status and health literacy; one study showed that wealthier Tanzanian families were more likely to recognize disease in their children than those that were coming from lower income backgrounds.[22]

Social inequities are a key barrier to accessing health-related educational resources. Patients in lower socioeconomic areas will have less access to information about health in general, leading to less awareness of different diseases and health issues. Health education has proven to be a strong preventative measure that can be taken to decrease levels of illness and increase levels of visiting healthcare providers.[34] The lack of health education can contribute to worsened health outcomes in these areas.

Education inequities are also closely associated with health inequities. Individuals with lower levels of education are more likely to incur greater health risks such as substance abuse, obesity, and injuries both intentional and unintentional.[35] Education is also associated with greater comprehension of health information and services necessary to make the right health decisions, as well as being associated with a longer lifespan.[36] Individuals with high grades have been observed to display better levels of protective health behavior and lower levels of risky health behaviors than their less academically gifted counterparts. Factors such as poor diets, inadequate physical activity, physical and emotional abuse, and teenage pregnancy all have significant impacts on students' academic performance and these factors tend to manifest themselves more frequently in lower-income individuals.[37][38]

Spatial disparities in health

For some populations, access to healthcare and health resources is physically limited, resulting in health inequities. For instance, an individual might be physically incapable of traveling the distances required to reach healthcare services, or long distances can make seeking regular care unappealing despite the potential benefits.[32]

In 2019, the federal government identified nearly 80 percent of rural America as "medically underserved,"[39] lacking in skilled nursing facilities, as well as rehabilitation, psychiatric and intensive care units.[40] In rural areas, there are approximately 68 primary care doctors per 100,000 people, whereas there are 84 doctors per 100,000 in urban centers.[41] According to the National Rural Health Association, almost 10% of rural counties had no doctors in 2017. Rural communities face lower life expectancies and increased rates of diabetes, chronic disease, and obesity.[42]

Costa Rica, for example, has demonstrable health spatial inequities with 12–14% of the population living in areas where healthcare is inaccessible. Inequity has decreased in some areas of the nation as a result of the work of healthcare reform programs, however those regions not served by the programs have experienced a slight increase in inequity.[43]

China experienced a serious decrease in spatial health equity following the Chinese economic revolution in the 1980s as a result of the degradation of the Cooperative Medical System (CMS). The CMS provided an infrastructure for the delivery of healthcare to rural locations, as well as a framework to provide funding based upon communal contributions and government subsidies. In its absence, there was a significant decrease in the quantity of healthcare professionals (35.9%), as well as functioning clinics (from 71% to 55% of villages over 14 years) in rural areas, resulting in inequitable healthcare for rural populations.[27][44] The significant poverty experienced by rural workers (some earning less than US$1 per day) further limits access to healthcare, and

results in malnutrition and poor general hygiene, compounding the loss of healthcare resources.[21] The loss of the CMS has had noticeable impacts on life expectancy, with rural regions such as areas of Western China experiencing significantly lower life expectancies.[45][46]

Similarly, populations in rural Tajikistan experience spatial health inequities. A study by Jane Falkingham noted that physical access to healthcare was one of the primary factors influencing quality of maternal healthcare. Further, many women in rural areas of the country did not have adequate access to healthcare resources, resulting in poor maternal and neonatal care. These rural women were, for instance, far more likely to give birth in their homes without medical oversight.[33]

Ethnic and racial disparities

Along with the socioeconomic factor of health disparities, race is another key factor. The United States historically had large disparities in health and access to adequate healthcare between races, and current evidence supports the notion that these racially centered disparities continue to exist and are a significant social health issue.[47][48] The disparities in access to adequate healthcare include differences in the quality of care based on race and overall insurance coverage based on race. A 2002 study in the *Journal of the American Medical Association* identifies race as a significant determinant in the level of quality of care, with blacks receiving lower quality care than their white counterparts.[49] This is in part because members of ethnic minorities such as African Americans are either earning low incomes, or living below the poverty line. In a 2007 Census Bureau, African American families made an average of $33,916, while their white counterparts made an average of $54,920.[50] Due to a lack of affordable health care, the African American death rate reveals that African Americans have a higher rate of dying from treatable or preventable causes. According to a study conducted in 2005 by the Office of Minority Health—a U.S. Department of Health—African American men were 30% more likely than white men to die from heart disease.[50] Also African American women were 34% more likely to die from breast cancer than their white counterparts.[50] Additionally, among African American and Latino infants, mortality rates are 2 to 3 times higher than other racial groups.[51] An analysis of more than 2 million pregnancies found that babies born to Black women worldwide had poorer outcomes (such as baby death and stillbirth) than White women. This was true even after controlling for older age and a lower level of education among mothers (an indicator of poorer economic and social status). In the same analysis, Hispanic women were 3 times more likely to experience a baby death than White women and South Asian women had an increased risk of premature birth and having a baby with low birthweight compared with White women.[52][53] Such disparities also prevalently attack indigenous communities. As members of indigenous communities adjust to western lifestyles, they have become more susceptible to developing certain chronic illnesses.[54]

There are also considerable racial disparities in access to insurance coverage, with ethnic minorities generally having less insurance coverage than non-ethnic minorities. For example, Hispanic Americans tend to have less insurance coverage than white Americans and as a result receive less regular medical care.[55] The level of insurance coverage is directly correlated with access to healthcare including preventive and ambulatory care.[47] A 2010 study on racial and ethnic disparities in health done by the Institute of Medicine has shown that the aforementioned disparities cannot solely be accounted for in terms of certain demographic characteristics like: insurance status, household income, education, age, geographic location and quality of living conditions. Even when the researchers corrected for these factors, the disparities persist.[56] Slavery has contributed to disparate health outcomes for generations of African Americans in the United States.[57]

Ethnic health inequities also appear in nations across the African continent. A survey of the child mortality of major ethnic groups across 11 African nations (Central African Republic, Côte d'Ivoire, Ghana, Kenya, Mali, Namibia, Niger, Rwanda, Senegal, Uganda, and Zambia) was published in 2000 by the WHO. The study described the presence of significant ethnic parities in the child mortality rates among children younger than 5 years old, as well as in education and vaccine use.[58] In South Africa, the legacy of apartheid still manifests itself as a differential access to social services, including healthcare based upon race and social class, and the resultant health inequities.[59][60] Further, evidence suggests systematic disregard of indigenous populations in a number of countries. The Pygmies of Congo, for instance, are excluded from government health programs, discriminated against during public health campaigns, and receive poorer overall healthcare.[61]

In a survey of five European countries (Sweden, Switzerland, the UK, Italy, and France), a 1995 survey noted that only Sweden provided access to translators for 100% of those who needed it, while the other countries lacked

this service potentially compromising healthcare to non-native populations. Given that non-natives composed a considerable section of these nations (6%, 17%, 3%, 1%, and 6% respectively), this could have significant detrimental effects on the health equity of the nation. In France, an older study noted significant differences in access to healthcare between native French populations, and non-French/migrant populations based upon health expenditure; however this was not fully independent of poorer economic and working conditions experienced by these populations.[62]

A 1996 study of race-based health inequity in Australia revealed that Aborigines experienced higher rates of mortality than non-Aborigine populations. Aborigine populations experienced 10 times greater mortality in the 30–40 age range; 2.5 times greater infant mortality rate, and 3 times greater age standardized mortality rate. Rates of diarrheal diseases and tuberculosis are also significantly greater in this population (16 and 15 times greater respectively), which is indicative of the poor healthcare of this ethnic group. At this point in time, the parities in life expectancy at birth between indigenous and non-indigenous peoples were highest in Australia, when compared to the US, Canada and New Zealand.[63][64] In South America, indigenous populations faced similarly poor health outcomes with maternal and infant mortality rates that were significantly higher (up to 3 to 4 times greater) than the national average.[65] The same pattern of poor indigenous healthcare continues in India, where indigenous groups were shown to experience greater mortality at most stages of life, even when corrected for environmental effects.[66]

Due to systemic health and social inequities people from racial and ethnic minority groups in the United States are disproportionately affected by COVID-19.[67]

On February 5, 2021, the head of the World Health Organization (WHO), Tedros Adhanom Ghebreyesus, noted regarding the global inequity in the access to COVID-19 vaccines, that almost 130 countries had not yet given a single dose.[68] In early April 2021, the WHO reported that 87% of existing vaccines had been distributed to the wealthiest countries, while only 0.2% had been distributed to the poorest countries. As a result, one-quarter of the populations of those wealthy countries had already been vaccinated, while only 1 in 500 residents of the poor countries had been vaccinated.[69]

LGBT health disparities

Sexuality is a basis of health discrimination and inequity throughout the world. Homosexual, bisexual, transgender, and gender-variant populations around the world experience a range of health problems related to their sexuality and gender identity,[70][71][72][73] some of which are complicated further by limited research.

In spite of recent advances, LGBT populations in China, India, and Chile continue to face significant discrimination and barriers to care.[73][74][75] The World Health Organization (WHO) recognizes that there is inadequate research data about the effects of LGBT discrimination on morbidity and mortality rates in the patient population. In addition, retrospective epidemiological studies on LGBT populations are difficult to conduct as a result of the practice that sexual orientation is not noted on death certificates.[76] WHO has proposed that more research about the LGBT patient population is needed for improved understanding of its unique health needs and barriers to accessing care.[77]

Recognizing the need for LGBT healthcare research, the Director of the National Institute on Minority Health and Health Disparities (NIMHD) at the U.S. Department of Health and Human Services designated sexual and gender minorities (SGMs) as a health disparity population for NIH research in October 2016.[78] For the purposes of this designation, the Director defines SGM as "encompass[ing] lesbian, gay, bisexual, and transgender populations, as well as those whose sexual orientation, gender identity and expressions, or reproductive development varies from traditional, societal, cultural, or physiological norms".[78] This designation has prioritized research into the extent, cause, and potential mitigation of health disparities among SGM populations within the larger LGBT community.

While many aspects of LGBT health disparities are heretofore uninvestigated, at this stage, it is known that one of the main forms of healthcare discrimination LGBT individuals face is discrimination from healthcare workers or institutions themselves.[79][80] A systematic literature review of publications in English and Portuguese from 2004 to 2014 demonstrate significant difficulties in accessing care secondary to discrimination and homophobia from healthcare professionals.[81] This discrimination can take the form of verbal abuse, disrespectful conduct, refusal of care, the withholding of health information, inadequate treatment, and outright violence.[81][82] In a study analyzing the quality of healthcare for South African men who have sex with men (MSM), researchers interviewed a cohort of individuals about their health experiences, finding that MSM who identified as

homosexual felt their access to healthcare was limited due to an inability to find clinics employing healthcare workers who did not discriminate against their sexuality.[83] They also reportedly faced "homophobic verbal harassment from healthcare workers when presenting for STI treatment".[83] Further, MSM who did not feel comfortable disclosing their sexual activity to healthcare workers failed to identify as homosexuals, which limited the quality of the treatment they received.[83]

Additionally, members of the LGBT community contend with health care disparities due, in part, to lack of provider training and awareness of the population's healthcare needs.[82] Transgender individuals believe that there is a higher importance of providing gender identity (GI) information more than sexual orientation (SO) to providers to help inform them of better care and safe treatment for these patients.[84] Studies regarding patient-provider communication in the LGBT patient community show that providers themselves report a significant lack of awareness regarding the health issues LGBT-identifying patients face.[82] As a component of this fact, medical schools do not focus much attention on LGBT health issues in their curriculum; the LGBT-related topics that are discussed tend to be limited to HIV/AIDS, sexual orientation, and gender identity.[82]

Among LGBT-identifying individuals, transgender individuals face especially significant barriers to treatment. Many countries still do not have legal recognition of transgender or non-binary gender individuals leading to placement in mis-gendered hospital wards and medical discrimination.[85][86] Seventeen European states mandate sterilization of individuals who seek recognition of a gender identity that diverges from their birth gender.[86] In addition to many of the same barriers as the rest of the LGBT community, a WHO bulletin points out that globally, transgender individuals often also face a higher disease burden.[87] A 2010 survey of transgender and gender-variant people in the United States revealed that transgender individuals faced a significant level of discrimination.[88] The survey indicated that 19% of individuals experienced a healthcare worker refusing care because of their gender, 28% faced harassment from a healthcare worker, 2% encountered violence, and 50% saw a doctor who was not able or qualified to provide transgender-sensitive care.[88] In Kuwait, there have been reports of transgender individuals being reported to legal authorities by medical professionals, preventing safe access to care.[85] An updated version of the U.S. survey from 2015 showed little change in terms of healthcare experiences for transgender and gender variant individuals. The updated survey revealed that 23% of individuals reported not seeking necessary medical care out of fear of discrimination, and 33% of individuals who had been to a doctor within a year of taking the survey reported negative encounters with medical professionals related to their transgender status.[89]

The stigmatization represented particularly in the transgender population creates a health disparity for LGBT individuals with regard to mental health.[79] The LGBT community is at increased risk for psychosocial distress, mental health complications, suicidality, homelessness, and substance abuse, often complicated by access-based under-utilization or fear of health services.[79][80][90] Transgender and gender-variant individuals have been found to experience higher rates of mental health disparity than LGB individuals. According to the 2015 U.S. Transgender Survey, for example, 39% of respondents reported serious psychological distress, compared to 5% of the general population.[89]

These mental health facts are informed by a history of anti-LGBT bias in health care.[91] The Diagnostic and Statistical Manual of Mental Disorders (DSM) listed homosexuality as a disorder until 1973; transgender status was listed as a disorder until 2012.[91] This was amended in 2013 with the DSM-5 when "gender identity disorder" was replaced with "gender dysphoria", reflecting that simply identifying as transgender is not itself pathological and that the diagnosis is instead for the distress a transgender person may experience as a result of the discordance between assigned gender and gender identity.[92]

LGBT health issues have received disproportionately low levels of medical research, leading to difficulties in assessing appropriate strategies for LGBT treatment. For instance, a review of medical literature regarding LGBT patients revealed that there are significant gaps in the medical understanding of cervical cancer in lesbian and bisexual individuals[76] it is unclear whether its prevalence in this community is a result of probability or some other preventable cause. For example, LGBT people report poorer cancer care experiences.[93] It is incorrectly assumed that LGBT women have a lower incidence of cervical cancer than their heterosexual counterparts, resulting in lower rates of screening.[76] Such findings illustrate the need for continued research focused on the circumstances and needs of LGBT individuals and the inclusion in policy frameworks of sexual orientation and gender identity as social determinants of health.[94]

A June 2017 review sponsored by the European commission as part of a larger project to identify and diminish health inequities, found that LGB are at higher risk of some cancers and that LGBTI were at higher risk of mental illness, and that these risks were not adequately addressed. The causes of health inequities were, according to the review, "i) cultural and social norms that preference and prioritise heterosexuality; ii) minority stress associated with sexual orientation, gender identity and sex characteristics; iii) victimisation; iv) discrimination (individual and institutional), and; v) stigma."[95]

Sex and gender in healthcare equity

Sex and gender in medicine

Both gender and sex are significant factors that influence health. Sex is characterized by female and male biological differences in regards to gene expression, hormonal concentration, and anatomical characteristics.[96] Gender is an expression of behavior and lifestyle choices. Both sex and gender inform each other, and differences between the two genders influence disease manifestation and associated healthcare approaches.[96] Understanding how the interaction of sex and gender contributes to disparity in the context of health allows providers to ensure quality outcomes for patients. This interaction is complicated by the difficulty of distinguishing between sex and gender given their intertwined nature; sex modifies gender, and gender can modify sex, thereby impacting health.[96] Sex and gender can both be considered sources of health disparity; both contribute to men and women's susceptibility to various health conditions, including cardiovascular disease and autoimmune disorders.[96]

Health disparities in the male population

Gender and sex are both components of health disparity in the male population. In non-Western regions, males tend to have a health advantage over women due to gender discrimination, evidenced by infanticide, early marriage, and domestic abuse for females.[97] In most regions of the world, the mortality rate is higher for adult men than for adult women; for example, adult men develop fatal illnesses with more frequency than females.[98] The leading causes of the higher male death rate are accidents, injuries, violence, and cardiovascular diseases. In most regions of the world, violence and traffic-related injuries account for the majority of mortality of adolescent males.[98]

Physicians tend to offer invasive procedures to male patients more often than to female patients.[99] Furthermore, men are more likely to smoke than women and experience smoking-related health complications later in life as a result; this trend is also observed in regard to other substances, such as marijuana, in Jamaica, where the rate of use is 2–3 times more for men than women.[98] Men are also more likely to have severe chronic conditions and a lower life expectancy than women in the United States.[100]

Health disparities in the female population

Gender and sex are also components of health disparity in the female population. The 2012 World Development Report (WDR) noted that women in developing nations experience greater mortality rates than men in developing nations.[101] Additionally, women in developing countries have a much higher risk of maternal death than those in developed countries. The highest risk of dying during childbirth is 1 in 6 in Afghanistan and Sierra Leone, compared to nearly 1 in 30,000 in Sweden—a disparity that is much greater than that for neonatal or child mortality.[102]

While women in the United States tend to live longer than men, they generally are of lower socioeconomic status (SES) and therefore have more barriers to accessing healthcare.[103] Being of lower SES also tends to increase societal pressures, which can lead to higher rates of depression and chronic stress and, in turn, negatively impact health.[103] Women are also more likely than men to suffer from sexual or intimate-partner violence both in the United States and worldwide. In Europe, women who grew up in poverty are more likely to have lower muscle strength and higher disability in old age.[104][105] Women have better access to healthcare in the United States than they do in many other places in the world,[106] yet having sufficient health insurance to afford the care, such as related to postpartum treatment and care, may help to avoid additional preventable hospital readmission and emergency department visits.[107]

In one population study conducted in Harlem, New York, 86% of women reported having privatized or publicly assisted health insurance, while only 74% of men reported having any health insurance. This trend is representative of the general population of the United States.[108] On the other hand, a woman's access to healthcare in rural communities has recently become a matter of concern. Access to maternal obstetric care has decreased in rural communities due to the increase in both hospital closers and labor & delivery center closures

that have placed an increased burden on families living in these areas.[109] Burdens faced by women in these rural communities include financial burdens on traveling to receive adequate care.[109] Millions of individuals living in rural areas in the United States are more at risk of having decreased access to maternal health care facilities if the community is low-income.[109] These women are more at risk of experiencing adverse maternal outcomes like a higher risk of having postpartum depression, having an out-of-hospital birth, and on the extreme end, maternal morbidity and mortality.[109]

In addition, women's pain tends to be treated less seriously and initially ignored by clinicians when compared to their treatment of men's pain complaints.[110] Historically, women have not been included in the design or practice of clinical trials, which has slowed the understanding of women's reactions to medications and created a research gap. This has led to post-approval adverse events among women, resulting in several drugs being pulled from the market. However, the clinical research industry is aware of the problem, and has made progress in correcting it.[111][112]

Cultural factors

Health disparities are also due in part to cultural factors that involve practices based not only on sex, but also gender status. For example, in China, health disparities have distinguished medical treatment for men and women due to the cultural phenomenon of preference for male children.[113] Recently, gender-based disparities have decreased as females have begun to receive higher-quality care.[114][115] Additionally, a girl's chances of survival are impacted by the presence of a male sibling; while girls do have the same chance of survival as boys if they are the oldest girl, they have a higher probability of being aborted or dying young if they have an older sister.[116]

In India, gender-based health inequities are apparent in early childhood. Many families provide better nutrition for boys in the interest of maximizing future productivity given that boys are generally seen as breadwinners.[117] In addition, boys receive better care than girls and are hospitalized at a greater rate. The magnitude of these disparities increases with the severity of poverty in a given population.[118]

Additionally, the cultural practice of female genital mutilation (FGM) is known to impact women's health, though is difficult to know the worldwide extent of this practice. While generally thought of as a Sub-Saharan African practice, it may have roots in the Middle East as well.[119] The estimated 3 million girls who are subjected to FGM each year potentially suffer both immediate and lifelong negative effects.[120] Immediately following FGM, girls commonly experience excessive bleeding and urine retention.[121] Long-term consequences include urinary tract infections, bacterial vaginosis, pain during intercourse, and difficulties in childbirth that include prolonged labor, vaginal tears, and excessive bleeding.[122][123] Women who have undergone FGM also have higher rates of post-traumatic stress disorder (PTSD) and herpes simplex virus 2 (HSV2) than women who have not.[124][125]

Health inequality and environmental influence

Minority populations have increased exposure to environmental hazards that include lack of neighborhood resources, structural and community factors as well as residential segregation that result in a cycle of disease and stress.[126] The environment that surrounds us can influence individual behaviors and lead to poor health choices and therefore outcomes.[127] Minority neighborhoods have been continuously noted to have more fast food chains and fewer grocery stores than predominantly white neighborhoods.[127] These food deserts affect a family's ability to have easy access to nutritious food for their children. This lack of nutritious food extends beyond the household into the schools that have a variety of vending machines and deliver over processed foods.[127] These environmental condition have social ramifications and in the first time in US history is it projected that the current generation will live shorter lives than their predecessors will.[127]

In addition, minority neighborhoods have various health hazards that result from living close to highways and toxic waste factories or general dilapidated structures and streets.[127] These environmental conditions create varying degrees of health risk from noise pollution, to carcinogenic toxic exposures from asbestos and radon that result in increased chronic disease, morbidity, and mortality.[128] The quality of residential environment such as damaged housing has been shown to increase the risk of adverse birth outcomes, which is reflective of a communities health. This occurs through exposure to lead in paint and lead contaminated soil as well as indoor air pollutants such as second-hand smoke and fine particulate matter.[129][130] Housing conditions can create varying degrees of health risk that lead to complications of birth and long-term consequences in the aging population.[130] In addition, occupational hazards can add to the detrimental effects of poor housing conditions.

It has been reported that a greater number of minorities work in jobs that have higher rates of exposure to toxic chemical, dust and fumes.[131] One example of this is the environmental hazards that poor Latino farmworkers face in the United States. This group is exposed to high levels of particulate matter and pesticides on the job, which have contributed to increased cancer rates, lung conditions, and birth defects in their communities.[132] Racial segregation is another environmental factor that occurs through the discriminatory action of those organizations and working individuals within the real estate industry, whether in the housing markets or rentals. Even though residential segregation is noted in all minority groups, blacks tend to be segregated regardless of income level when compared to Latinos and Asians.[133] Thus, segregation results in minorities clustering in poor neighborhoods that have limited employment, medical care, and educational resources, which is associated with high rates of criminal behavior.[134][135] In addition, segregation affects the health of individual residents because the environment is not conducive to physical exercise due to unsafe neighborhoods that lack recreational facilities and have nonexistent park space.[134] Racial and ethnic discrimination adds an additional element to the environment that individuals have to interact with daily.[136] Individuals that reported discrimination have been shown to have an increased risk of hypertension in addition to other physiological stress related affects.[137] The high magnitude of environmental, structural, socioeconomic stressors leads to further compromise on the psychological and physical being, which leads to poor health and disease.[126]
Individuals living in rural areas, especially poor rural areas, have access to fewer health care resources. Although 20 percent of the U.S. population lives in rural areas, only 9 percent of physicians practice in rural settings. Individuals in rural areas typically must travel longer distances for care, experience long waiting times at clinics, or are unable to obtain the necessary health care they need in a timely manner. Rural areas characterized by a largely Hispanic population average 5.3 physicians per 10,000 residents compared with 8.7 physicians per 10,000 residents in nonrural areas. Financial barriers to access, including lack of health insurance, are also common among the urban poor.[138]

Disparities in access to health care

Reasons for disparities in access to health care are many, but can include the following:

- Lack of a regular source of care. Without access to a regular source of care, patients have greater difficulty obtaining care, fewer doctor visits, and more difficulty obtaining prescription drugs. Compared to whites, minority groups in the United States are less likely to have a doctor they go to on a regular basis and are more likely to use emergency rooms and clinics as their regular source of care.[139] In the United Kingdom, which is much more racially harmonious, this issue arises for a different reason; since 2004, NHS GPs have not been responsible for care out of normal GP surgery opening hours, leading to significantly higher attendances in A+E
- Lack of financial resources. Although the lack of financial resources is a barrier to health care access for many Americans, the impact on access appears to be greater for minority populations.[140]
- Legal barriers. Access to medical care by low-income immigrant minorities can be hindered by legal barriers to public insurance programs. For example, in the United States federal law bars states from providing Medicaid coverage to immigrants who have been in the country fewer than five years.[6]:10 Another example could be when a non-English speaking person attends a clinic where the receptionist does not speak the person's language. This is mostly seen in people who have limited English proficiency, or LEP.
- Structural barriers. These barriers include poor transportation, an inability to schedule appointments quickly or during convenient hours, and excessive time spent in the waiting room, all of which affect a person's ability and willingness to obtain needed care.[141]
- Scarcity of providers. In inner cities, rural areas, and communities with high concentrations of minority populations, access to medical care can be limited due to the scarcity of primary care practitioners, specialists, and diagnostic facilities.[142] This scarcity can also extend to the personnel in the medical laboratory with some geographical regions having significantly diminished access to advanced diagnostic methods and pathology care.[143] In the UK, Monitor (a quango) has a legal obligation to ensure that sufficient provision exists in all parts of the nation.
- The health care financing system. The Institute of Medicine in the United States says fragmentation of the U.S. health care delivery and financing system is a barrier to accessing care. Racial and ethnic

minorities are more likely to be enrolled in health insurance plans which place limits on covered services and offer a limited number of health care providers.[6]:10

- Linguistic barriers. Language differences restrict access to medical care for minorities in the United States who have limited English proficiency.[144]
- Health literacy. This is where patients have problems obtaining, processing, and understanding basic health information. For example, patients with a poor understanding of good health may not know when it is necessary to seek care for certain symptoms. While problems with health literacy are not limited to minority groups, the problem can be more pronounced in these groups than in whites due to socioeconomic and educational factors.[142] A study conducted in Mdantsane, South Africa depicts the correlation of maternal education and the antenatal visits for pregnancy. As patients have a greater education, they tend to use maternal health care services more than those with a lesser maternal education background.[145]
- Lack of diversity in the health care workforce. A major reason for disparities in access to care are the cultural differences between predominantly white health care providers and minority patients. Only 4% of physicians in the United States are African American, and Hispanics represent just 5%, even though these percentages are much less than their groups' proportion of the United States population.[6]:13
- Age. Age can also be a factor in health disparities for a number of reasons. As many older Americans exist on fixed incomes which may make paying for health care expenses difficult. Additionally, they may face other barriers such as impaired mobility or lack of transportation which make accessing health care services challenging for them physically. Also, they may not have the opportunity to access health information via the internet as less than 15% of Americans over the age of 65 have access to the internet.[146] This could put older individuals at a disadvantage in terms of accessing valuable information about their health and how to protect it. On the other hand, older individuals in the US (65 or above) are provided with medical care via Medicare.
- Criminalization and lack of research of traditional medicine,[147] and mental health treatments.[148] Mental illness accounts for about one-third of adult disability globally.[149] Conventional drug treatments have dominated psychiatry for decades, without a breakthrough in mental healthcare. Access to psychedelic-assisted therapy, and the decriminalization of Psilocybin and other entheogens are questions of health justice.[150]

Health Insurance

A major part of the United States' healthcare system is health insurance. The main types of health insurance in the United States includes taxpayer-funded health insurance and private health insurance.[151] Funded through state and federal taxes, some common examples of taxpayer-funded health insurance include Medicaid, Medicare, and CHIP.[151] Private health insurance is offered in a variety of forms, and includes plans such as Health Maintenance Organizations (HMO's) and Preferred Provider Organization (PPO's).[151] While health insurance increases the affordability of healthcare in the United States, issues of access along with additional related issues act as barriers to health equity.

There are many issues due to health insurance that affect health equity, including the following:

- Health Insurance Literacy. Within these health insurance plans, common aspects of the insurance include premiums, deductibles, co-payments, coinsurance, coverage limits, in-network versus out-of-network providers, and prior authorization.[152] According to a United Health survey, only 9% of Americans surveyed understood these health insurance terms.[152] To address issues in finding available insurance plans and confusion around the components of health insurance policies, the Affordable Care Act (ACA) set up state-mandated health insurance marketplaces or health exchanges, where individuals can research and compare different kinds of health care plans and their respective components.[153] Between 2014 and 2020, over 11.4 million people have been able to sign up for health insurance through the Marketplaces.[154] However, most Marketplaces focus more on the presentation of health insurances and their coverages, rather than including detailed explanations of the health insurance terms.
- Lack of universal health care or health insurance coverage. According to the Congressional Budget Office (CBO), 28.9 million people in the United States were uninsured in 2018, and that number would

rise to an estimated 35 million people by 2029.[155] Without health insurance, patients are more likely to postpone medical care, go without needed medical care, go without prescription medicines, and be denied access to care.[156] Minority groups in the United States lack insurance coverage at higher rates than whites.[157] This problem does not exist in countries with fully funded public health systems, such as the examplar of the NHS.

- Underinsured or inefficient health insurance coverage. While there are many causes of underinsurance, a common a reason is due to low premiums, the up-front yearly or monthly amount individuals pay for their insurance policy, and high deductibles, the amount paid out of pocket by the policy holder before an insurance provider will pay any expenses.[158] Under the ACA, individuals were subject to a fee called the Shared Responsibility Payment, which occurred as a result of not buying health insurance despite being able to afford it.[159] While this mandate was aimed at increasing health insurance rates for Americans, it also led many individuals to sign up for relatively inexpensive health insurance plans that did not provide adequate health coverage in order to avoid the repercussions of the mandate.[158] Similar to those who lack health insurance, these underinsured individuals also deal with the side effects that occur as a result of lack of care.

Dental healthcare

In many countries, dental healthcare is less accessible than other kinds of healthcare resulting in increased risk for oral and systemic diseases. In Western countries, dental healthcare providers are present, and private or public healthcare systems typically facilitate access. However, access remains limited for marginalized groups such as the homeless, racial minorities, and those who are homebound or disabled. In Central and Eastern Europe, the privatization of dental healthcare has resulted in a shortage of affordable options for lower-income people. In Eastern Europe, school-age children formerly had access through school programs, but these have been discontinued. Therefore, many children no longer have access to care. Access to services and the breadth of services provided is greatly reduced in developing regions. Such services may be limited to emergency care and pain relief, neglecting preventative or restorative services. Regions like Africa, Asia, and Latin America do not have enough dental health professionals to meet the needs of the populace. In Africa, for example, there is only one dentist for every 150,000 people, compared to industrialized countries which average one dentist per 2,000 people.[160]

Disparities in quality of health care

Health disparities in the quality of care exist and are based on language and ethnicity/race which includes:

Problems with patient-provider communication

Communication is critical for the delivery of appropriate and effective treatment and care, regardless of a patient's race, and miscommunication can lead to incorrect diagnosis, improper use of medications, and failure to receive follow-up care. The patient provider relationship is dependent on the ability of both individuals to effectively communicate. Language and culture both play a significant role in communication during a medical visit. Among the patient population, minorities face greater difficulty in communicating with their physicians. Patients when surveyed responded that 19% of the time they have problems communicating with their providers which included understanding doctor, feeling doctor listened, and had questions but did not ask.[161] In contrast, the Hispanic population had the largest problem communicating with their provider, 33% of the time.[161] Communication has been linked to health outcomes, as communication improves so does patient satisfaction which leads to improved compliance and then to improved health outcomes.[162] Quality of care is impacted as a result of an inability to communicate with health care providers. Language plays a pivotal role in communication and efforts need to be taken to ensure excellent communication between patient and provider. Among limited English proficient patients in the United States, the linguistic barrier is even greater. Less than half of non-English speakers who say they need an interpreter during clinical visits report having one. The absence of interpreters during a clinical visit adds to the communication barrier. Furthermore, inability of providers to communicate with limited English proficient patients leads to more diagnostic procedures, more invasive procedures, and over prescribing of medications.[163] Language barriers have not only hindered appointment scheduling, prescription filling, and clear communications, but have also been associated with health declines, which can be attributed to reduced compliance and delays in seeking care, which could affect particularly refugee health in the United States. [164][165] Many health-related settings provide interpreter services for their limited English proficient patients. This has been helpful when providers do not speak the same

language as the patient. However, there is mounting evidence that patients need to communicate with a language concordant physician (not simply an interpreter) to receive the best medical care, bond with the physician, and be satisfied with the care experience.[166][167] Having patient-physician language discordant pairs (i.e. Spanish-speaking patient with an English-speaking physician) may also lead to greater medical expenditures and thus higher costs to the organization.[168] Additional communication problems result from a decrease or lack of cultural competence by providers. It is important for providers to be cognizant of patients' health beliefs and practices without being judgmental or reacting. Understanding a patients' view of health and disease is important for diagnosis and treatment. So providers need to assess patients' health beliefs and practices to improve quality of care.[169] Patient health decisions can be influenced by religious beliefs, mistrust of Western medicine, and familial and hierarchical roles, all of which a white provider may not be familiar with.[6]:13 Other type of communication problems are seen in LGBT health care with the spoken heterosexist (conscious or unconscious) attitude on LGBT patients, lack of understanding on issues like having no sex with men (lesbians, gynecologic examinations) and other issues.[170]

Provider discrimination

Provider discrimination occurs when health care providers either unconsciously or consciously treat certain racial and ethnic patients differently from other patients. This may be due to stereotypes that providers may have towards ethnic/racial groups. A March, 2000 study from Social Science & Medicine suggests that doctors may be more likely to ascribe negative racial stereotypes to their minority patients.[171] This may occur regardless of consideration for education, income, and personality characteristics. Two types of stereotypes may be involved, automatic stereotypes or goal modified stereotypes. Automated stereotyping is when stereotypes are automatically activated and influence judgments/behaviors outside of consciousness.[172] Goal modified stereotype is a more conscious process, done when specific needs of clinician arise (time constraints, filling in gaps in information needed) to make a complex decisions.[172] Physicians are unaware of their implicit biases.[173] Some research suggests that ethnic minorities are less likely than whites to receive a kidney transplant once on dialysis or to receive pain medication for bone fractures. Critics question this research and say further studies are needed to determine how doctors and patients make their treatment decisions. Others argue that certain diseases cluster by ethnicity and that clinical decision making does not always reflect these differences.[174]

Lack of preventive care

According to the 2009 National Healthcare Disparities Report, uninsured Americans are less likely to receive preventive services in health care.[175] For example, minorities are not regularly screened for colon cancer and the death rate for colon cancer has increased among African Americans and Hispanic populations. Furthermore, limited English proficient patients are also less likely to receive preventive health services such as mammograms.[176] Studies have shown that use of professional interpreters have significantly reduced disparities in the rates of fecal occult testing, flu immunizations and pap smears.[177] In the UK, Public Health England, a universal service free at the point of use, which forms part of the NHS, offers regular screening to any member of the population considered to be in an at-risk group (such as individuals over 45) for major disease (such as colon cancer, or diabetic-retinopathy).[178][179]

Plans for achieving health equity

There are a multitude of strategies for achieving health equity and reducing disparities outlined in scholarly texts, some examples include:

- Advocacy. Advocacy for health equity has been identified as a key means of promoting favourable policy change.[180] Euro HealthNet carried out a systematic review of the academic and grey literature. It found, amongst other things, that certain kinds of evidence may be more persuasive in advocacy efforts, that practices associated with knowledge transfer and translation can increase the uptake of knowledge, that there are many different potential advocates and targets of advocacy and that advocacy efforts need to be tailored according to context and target.[181] As a result of its work, it produced an online advocacy for health equity toolkit.[182]
- Provider based incentives to improve healthcare for ethnic populations. One source of health inequity stems from unequal treatment of non-white patients in comparison with white patients. Creating provider based incentives to create greater parity between treatment of white and non-white patients

is one proposed solution to eliminate provider bias.[183] These incentives typically are monetary because of its effectiveness in influencing physician behavior.

- Using Evidence Based Medicine (EBM). Evidence Based Medicine (EBM) shows promise in reducing healthcare provider bias in turn promoting health equity.[184] In theory EBM can reduce disparities however other research suggests that it might exacerbate them instead. Some cited shortcomings include EBM's injection of clinical inflexibility in decision making and its origins as a purely cost driven measure.[185]
- Increasing awareness. The most cited measure to improving health equity relates to increasing public awareness. A lack of public awareness is a key reason why there has not been significant gains in reducing health disparities in ethnic and minority populations. Increased public awareness would lead to increased congressional awareness, greater availability of disparity data, and further research into the issue of health disparities.
- The Gradient Evaluation Framework. The evidence base defining which policies and interventions are most effective in reducing health inequalities is extremely weak. It is important therefore that policies and interventions which seek to influence health inequity be more adequately evaluated. Gradient Evaluation Framework (GEF) is an action-oriented policy tool that can be applied to assess whether policies will contribute to greater health equity amongst children and their families.[186]
- The AIM framework. In a pilot study, researchers examined the role of AIM—ability, incentives, and management feedback—in reducing care disparity in pressure-ulcer detection between African American and Caucasian residents. The results showed that while the program was implemented, the provision of (1) training to enhance ability, (2) monetary incentives to enhance motivation, and (3) management feedback to enhance accountability led to successful reduction in pressure ulcers. Specifically, the detection gap between the two groups decreased. The researchers suggested additional replications with longer duration to assess the effectiveness of the AIM framework.
- Monitoring actions on the social determinants of health. In 2017, citing the need for accountability for the pledges made by countries in the Rio Political Declaration on Social Determinants of Health, the World Health Organization and United Nations Children's Fund called for the monitoring of intersectoral interventions on the social determinants of health that improve health equity.[187]
- Changing the distribution of health services. Health services play a major role in health equity. Health inequities stem from lack of access to care due to poor economic status and an interaction among other social determinants of health. The majority of high-quality health services are distributed among the wealthy people in society, leaving those who are poor with limited options. In order to change this fact and move towards achieving health equity, it is essential that health care increases in areas or neighborhoods consisting of low socioeconomic families and individuals.[31]
- Prioritize treatment among the poor. Because of the challenges that arise from accessing health care with low economic status, many illnesses and injuries go untreated or are not given sufficient treatment. Promoting treatment as a priority among the poor will give them the resources they need in order to achieve good health, because health is a basic human right.[1][31]
- Implementing medical pluralism. Extreme differences that underlie urban and alternative medicine approaches emphasize the need for a system that represents the duality of the populations it intends to serve. Urban medicine generally believes that technological advancement is the best way to help treat illness as it allows for a more "sophisticated" mode of care; alternative medicine is more traditional in relying solely on herbal and natural remedies believing that the elaborate institutions of urban care are not best suited for serving individual needs. Medical pluralism, hence, is an adaptive tactic most effective for communities that include Indigenous people, and mixed rural-urban populations.[188] Medical pluralism acknowledges the needs of a variety of people and is a step closer to health equity. Medical pluralism "avoids the extremes'' of most current healthcare delivery approaches and provides a middle-ground perspective on tackling health issues that are not solved by urban or rural health alone.[189] By practicing integrative medicine, chronic and unresolved health issues are better treated, borrowing from the technological and philosophical approaches of both models of care. Aimed at embracing both medical techniques, medical pluralism is currently being considered in nations with diverse communities; it is manifested in the practice of integrative medicine which is a

deliberate execution of that approach. There are currently ongoing efforts to implement this dual model of healthcare delivery regionally in nations composed of very diverse communities, and such is the case in many Latin American countries such as Ecuador that have a large indigenous population. The process of successfully implementing an integrative healthcare system is discussed as having six main steps that pose different challenges. Guito et al.'s guidelines for each steps describes the first as being 'imperceptible integration" to the sixth being "total integration".[190]

- Artificial Intelligence (AI) can be helpful in identifying and improving issues of health disparities. A recent scoping review of the literature found that it is important to engage with various communities while AI health applications are being developed and also reviewed based on various biases that are later identified through this work.[191]
- Pandemic Treaty. The WHO's member states made health equity the central principle of the convention or other international instrument under negotiation.[192]

G20's initiative for healthcare

In 2023, the G20 under its Affordable Healthcare Model Hospital initiative, with the Government of Andhra Pradesh, India, opened a 100-bed facility in Srikakulam, drawing support from the Aarogyasri scheme.[193][194][195][196]

Health inequalities

Health inequality is the term used in a number of countries to refer to those instances whereby the health of two demographic groups (not necessarily ethnic or racial groups) differs despite comparative access to health care services. Such examples include higher rates of morbidity and mortality for those in lower occupational classes than those in higher occupational classes, and the increased likelihood of those from ethnic minorities being diagnosed with a mental health disorder. In Canada, the issue was brought to public attention by the LaLonde report.

In UK, the Black Report was produced in 1980 to highlight inequalities. On 11 February 2010, Sir Michael Marmot, an epidemiologist at University College London, published the *Fair Society, Healthy Lives* report on the relationship between health and poverty. Marmot described his findings as illustrating a "social gradient in health": the life expectancy for the poorest is seven years shorter than for the wealthiest, and the poor are more likely to have a disability. In its report on this study, *The Economist* argued that the material causes of this contextual health inequality include unhealthful lifestyles – smoking remains more common, and obesity is increasing fastest, amongst the poor in Britain.[197]

In June 2018, the European Commission launched the Joint Action Health Equity in Europe.[198] Forty-nine participants from 25 European Union Member States will work together to address health inequalities and the underlying social determinants of health across Europe. Under the coordination of the Italian Institute of Public Health, the Joint Action aims to achieve greater equity in health in Europe across all social groups while reducing the inter-country heterogeneity in tackling health inequalities.

Poor health and economic inequality

Poor health outcomes appear to be an effect of economic inequality across a population. Nations and regions with greater economic inequality show poorer outcomes in life expectancy,[199]: Figure 1.1 mental health,[199]: Figure 5.1 drug abuse,[199]: Figure 5.3 obesity,[199]: Figure 7.1 educational performance, teenage birthrates, and ill health due to violence. On an international level, there is a positive correlation between developed countries with high economic equality and longevity. This is unrelated to average income per capita in wealthy nations.[199]: Figure 1.3 Economic gain only impacts life expectancy to a great degree in countries in which the mean per capita annual income is less than approximately $25,000. The United States shows exceptionally low health outcomes for a developed country, despite having the highest national healthcare expenditure in the world. The US ranks 31st in life expectancy. Americans have a lower life expectancy than their European counterparts, even when factors such as race, income, diet, smoking, and education are controlled for.[200]

Relative inequality negatively affects health on an international, national, and institutional levels. The patterns seen internationally hold true between more and less economically equal states in the United States. The patterns seen internationally hold true between more and less economically equal states in the United States, that is, more equal states show more desirable health outcomes. Importantly, inequality can have a negative health impact on members of lower echelons of institutions. The Whitehall I and II studies looked at the rates of cardiovascular disease and other health risks in British civil servants and found that, even when lifestyle

factors were controlled for, members of lower status in the institution showed increased mortality and morbidity on a sliding downward scale from their higher status counterparts. The negative aspects of inequality are spread across the population. For example, when comparing the United States (a more unequal nation) to England (a less unequal nation), the US shows higher rates of diabetes, hypertension, cancer, lung disease, and heart disease across all income levels.[199]: Figure 13.2 This is also true of the difference between mortality across all occupational classes in highly equal Sweden as compared to less-equal England.[199]: Figure 13.3

Bias in research

Research to identify health inequities, how they arise and what can be done to address them is essential to securing health equity. However, the same exclusionary social structures that contribute to health inequities in society also influence and are reproduced by researchers and public health institutions.[201] In other words, medicine and public health organizations have evolved to better meet the needs of some groups more than others. While there are many examples of bias in medical and public health research, some general categories of exclusionary research practices include:[202] 1) Structural invisibility – approaches to collection, analysis or publication of data which hide the potential contribution of social factors to the distribution of health risks or outcomes. For example, limitations in public health surveys in the United States to collect data on race, ethnicity, and nativity; (2) Institutionalized exclusion – codification of exclusionary social structures in research practices, instruments, and scientific models resulting in an inherent bias in favor of the normative group. For example, the definition of a human as an 80 kg man in toxicology; (3) Unexamined assumptions – cultural norms and unconscious bias that can impact all aspects of research. In other words, assuming that the researchers' perspective and understanding is objective and universally shared. For example, the lack of conceptual equivalence across multi-lingual survey instruments.[203][204]

Health disparity and genomics

Genomics applications continue to increase in clinical/medical applications. Historically, results from studies do not include underrepresented communities and races.[205] The question of who benefits from publicly funded genomics is an important public health consideration, and attention will be needed to ensure that implementation of genomic medicine does not further entrench social-equity concerns.[206] Currently the National Human Genome Research Institute counts with a Genomics and Health Disparities Interest Group to tackle the issues of accessibility and application of genomic medicine to communities not normally represented. The Director of the Health Disparities Group, Vence L. Bonham Jr., leads a team that seeks to qualify and better understand the disparities and reduce the gap in access to genetic counseling, inclusion of minority communities in original research, and access to genetic information to improve health.[207]

Yorum

Sağlıkta eşitlik kavramı: Bunun aksi düşünülemez.
Ülkemizde hastalığa göre yaklaşımların yapılması doğal karşılanmaktadır.

NEONATOLOJİ AÇISINDAN: Nerede bir prematüre doğarsa, oradan helikopter ile taşınarak ünitelere gelmektedir. Doğudan Batıya olduğu gibi örneğin İzmir'den Eskişehir'e nakiller olmaktadır.

Sevkler telefon ile hekim görüşülerek onay alınarak yapılmaktadır. Yatak dolu değil, gebelerin izlemi nedeni ile rezerv küvöz/inkübatör/yatakların olduğu için önemlidir.

Philosophy of healthcare, Wikipedia[14]

The **philosophy of healthcare** is the study of the ethics, processes, and people which constitute the maintenance of health for human beings.[*citation needed*] For the most part, however, the philosophy of healthcare is best approached as an indelible component of human social structures. That is, the societal institution of healthcare can be seen as a necessary phenomenon of human civilization whereby an individual continually seeks to improve, mend, and alter the overall nature and quality of their life. This perennial concern is especially prominent in modern political liberalism, wherein health has been understood as the foundational good necessary for public life.[1]

The philosophy of healthcare is primarily concerned with the following elemental questions:

- Who requires and/or deserves healthcare? Is healthcare a fundamental right of all people?
- What should be the basis for calculating the cost of treatments, hospital stays, drugs, etc.?
- How can healthcare best be administered to the greatest number of people?
- What are the necessary parameters for clinical trials and quality assurance?
- Who, if anybody, can decide when a patient is in need of "comfort measures" (allowing a natural death by providing medications to treat symptoms related to the patient's illness)?

However, the most important question of all is 'what is health?'. Unless this question is addressed any debate about healthcare will be vague and unbounded. For example, what exactly is a health care intervention? What differentiates healthcare from engineering or teaching, for example? Is health care about 'creating autonomy' or acting in people's best interests? Or is it always both? A 'philosophy' of anything requires baseline philosophical questions, as asked, for example, by philosopher David Seedhouse.[2]

Ultimately, the purpose, objective and meaning of healthcare philosophy is to consolidate the abundance of information regarding the ever-changing fields of biotechnology, medicine, and nursing. And seeing that healthcare typically ranks as one of the largest spending areas of governmental budgets, it becomes important to gain a greater understanding of healthcare as not only a social institution, but also as a political one. In addition, healthcare philosophy attempts to highlight the primary movers of healthcare systems; be it nurses, doctors, allied health professionals, hospital administrators, health insurance companies (HMOs and PPOs), the government (Medicare and Medicaid), and lastly, the patients themselves.

Ethics of healthcare

The ethical and/or moral premises of healthcare are complex and intricate. To consolidate such a large segment of moral philosophy, it becomes important to focus on what separates healthcare ethics from other forms of morality. And on the whole, it can be said that healthcare itself is a "*special*" institution within society.[3] With that said, healthcare ought to "be treated differently from other social goods" in a society.[4] It is an institution of which we are all a part whether we like it or not. At some point in every person's life, a decision has to be made regarding one's healthcare. Can they afford it? Do they deserve it? Do they need it? Where should they go to get it? Do they even want it? And it is this last question which poses the biggest dilemma facing a person. After weighing all of the costs and benefits of her healthcare situation, the person has to decide if the costs of healthcare outweigh the benefits. More than basic economic issues are at stake in this conundrum. In fact, a person must decide whether or not their life is ending or if it is worth salvaging. Of course, in instances where the patient is unable to decide due to medical complications, like a coma, then the decision must come from elsewhere. And defining that "elsewhere" has proven to be a very difficult endeavor in healthcare philosophy.[*citation needed*]

Medical ethics

Whereas bioethics tends to deal with more broadly-based issues like the consecrated nature of the human body and the roles of science and technology in healthcare, medical ethics is specifically focused on applying ethical principles to the field of medicine. Medical ethics has its roots in the writings of Hippocrates, and the practice of medicine was often used as an example in ethical discussions by Plato and Aristotle.[5] As a systematic field, however, it is a large and relatively new area of study in ethics. One of the major premises of medical ethics surrounds "the development of valuational measures of outcomes of health care treatments and programs; these outcome measures are designed to guide health policy and so must be able to be applied to substantial numbers of people, including across or even between whole societies."[6] Terms like beneficence and non-maleficence are vital to the overall understanding of medical ethics. Therefore, it becomes important to acquire a basic grasp of the varying dynamics that go into a doctor-patient relationship.[*citation needed*]

Nursing ethics

Like medical ethics, nursing ethics is very narrow in its focus, especially when compared to the expansive field of bioethics. For the most part, "nursing ethics can be defined as having a two-pronged meaning," whereby it is "the examination of all kinds of ethical and bioethical issues from the perspective of nursing theory and practice."[7] This definition, although quite vague, centers on the practical and theoretical approaches to nursing. The American Nurses Association (ANA) endorses an ethical code that emphasizes "values" and "evaluative judgments" in all areas of the nursing profession.[8] The importance of values is being increasingly recognized in all aspects of healthcare and health research.[9][10] And since moral issues are extremely prevalent throughout

nursing, it is important to be able to recognize and critically respond to situations that warrant and/or necessitate an ethical decision. A nurse promotes for and strives to protect the rights, safety, and health of all patients. Although these are clear nursing roles, all health care professionals must work together and collaborate to observe the patient's needs and rights.[11]

Business ethics

Balancing the cost of care with the quality of care is a major issue in healthcare philosophy. In Canada and some parts of Europe, democratic governments play a major role in determining how much public money from taxation should be directed towards the healthcare process. In the United States and other parts of Europe, private health insurance corporations as well as government agencies are the agents in this precarious life-and-death balancing act. According to medical ethicist Leonard J. Weber, "Good-quality healthcare means cost-effective healthcare," but "more expensive healthcare does not mean higher-quality healthcare" and "certain minimum standards of quality must be met for all patients" regardless of health insurance status.[12] This statement undoubtedly reflects the varying thought processes going into the bigger picture of a healthcare cost-benefit analysis. In order to streamline this tedious process, health maintenance organizations (HMOs) employ large numbers of actuaries (colloquially known as "insurance adjusters") to ascertain the appropriate balance between cost, quality, and necessity in a patient's healthcare plan.[13] A general rule in the health insurance industry is as follows:

The least costly treatment should be provided unless there is substantial evidence that a more costly intervention is likely to yield a superior outcome.[14]

This generalized rule for healthcare institutions "is perhaps one of the best expressions of the practical meaning of stewardship of resources," especially since "the burden of proof is on justifying the more expensive intervention, not the less expensive one, when different acceptable treatment options exist."[14]

Religious Ethics

Various forms of religiosity are often tied together with health care, as some practitioners feel an obligation of the divine sort to try and care for others. In ancient Greece, a lack of institutionalized health care made it difficult for society to care for "beggars or mendicants", known as πτωχός.[15]:117 Following the genesis of Judaism and later, Christianity, religious texts supported "special dispensations for economic and political care" for those who were perceived as helpless in largely patriarchal societies. The role of the patriarch at the center of both society at large and the family unit meant that orphans and widows were necessarily among the helpless, and this sentiment was echoed by the Old Testament's conception of the poor, which also included individuals who were lame, blind, and/or prisoners.[15]:117–119 The mythologizing of Asclepius in Greek and Roman tradition is reflective of the historical transformation of places of worship into sites of health care delivery.[16]:166

A concept that is fundamental to health care development, grounded in the sacred texts of both the Western and Eastern worlds, is the sanctity of life. From this notion, we are commanded to treat life of all sorts with considerable dignity before we may interfere with it, "giving at least some attention to its nature and purpose."[16]:167 In Western health care, dignity regarding human life can be traced back to *imago dei*, meaning "image of God", which asserts that human beings are created by God in a manner of resemblance to his own existence. This is to say that health care practitioners shouldn't merely perceive patients/clients to be fellow humans undergoing suffering, but also as unique likenesses of God.[16]:167

Following the Industrial Revolution, and the advent of the 20th Century, the face of modern medicine has evolved. However, the tensions between health care and religious practices have also grown in recent decades, and has led to some inequalities between the "rights" of the recipients and providers of health care.[17]:426 Legislative action has taken place in order to help solidify the rights of health care providers with respect to their religious beliefs. An example of this would be a conscience clause, which attempts to makes concessions to one's conscience when impacted by a law.[17]:426 In other words, there are laws in place that are intended to protect health care providers who refrain, for moral and/or religious reasons, from engaging in some forms of health care.[*citation needed*]

The rights of religious individuals and organizations are not just a matter of personal preference, but also of international jurisprudential value. The ethical implications of Supreme Court cases, such as that of Burwell v. Hobby Lobby, have the potential to shift personal and governmental attitudes regarding religiosity as it relates to health care. In pursuit of upholding their constitutional right to the free expression of religion, religious entities have had to legally defend their refusal to comply with government mandates, such as "to provide

employee insurance plans that cover contraceptive costs", which is of moral violation when viewed with a particular interpretation of some religious texts.[17]:428 The willingness of a governmental body to bring these sorts of cases to the highest legal authority may be thought of as a form of intolerance, and perhaps, additionally, as a precursor to social and legal changes surrounding the "rights" of health care providers and recipients.[17]:428–429

Political philosophy of healthcare

In the political philosophy of healthcare, the debate between universal healthcare and private healthcare is particularly contentious in the United States. In the 1960s, there was a plethora of public initiatives by the federal government to consolidate and modernize the U.S. healthcare system. With Lyndon Johnson's Great Society, the U.S. established public health insurance for both senior citizens and the underprivileged. Known as Medicare and Medicaid, these two healthcare programs granted certain groups of Americans access to adequate healthcare services. Although these healthcare programs were a giant step in the direction of socialized medicine, many people think that the U.S. needs to do more for its citizenry with respect to healthcare coverage.[18] Opponents of universal healthcare see it as an erosion of the high quality of care that already exists in the United States.[19]

Patients' Bill of Rights

In 2001, the U.S. federal government took up an initiative to provide patients with an explicit list of rights concerning their healthcare. The political philosophy behind such an initiative essentially blended ideas of the Consumers' Bill of Rights with the field of healthcare. It was undertaken in an effort to ensure the quality of care of all patients by preserving the integrity of the processes that occur in the healthcare industry.[20] Standardizing the nature of healthcare institutions in this manner proved provocative. In fact, many interest groups, including the American Medical Association (AMA) and Big Pharma came out against the congressional bill. Basically, having hospitals provide emergency medical care to anyone, regardless of health insurance status, as well as the right of a patient to hold their health plan accountable for any and all harm done proved to be the two biggest stumbling blocks for the bill.[20] As a result of this intense opposition, the initiative eventually failed to pass Congress in 2002.

Health insurance

Health insurance is the primary mechanism through which individuals cover healthcare costs in industrialized countries. It can be obtained from either the public or private sector of the economy. In Canada, for example, the provincial governments administer public health insurance coverage to citizens and permanent residents. According to Health Canada, the political philosophy of public insurance in Canada is as follows:

The administration and delivery of health care services is the responsibility of each province or territory, guided by the provisions of the Canada Health Act. The provinces and territories fund these services with assistance from the federal government in the form of fiscal transfers.[21]

And the driving force behind such a political philosophy in Canada was democratic socialist politician Tommy Douglas.

Contrasting with the U.S., but similar to Canada, Australia and New Zealand have universal healthcare systems known as Medicare and ACC (Accident Compensation Corporation), respectively.[22]

Australian Medicare originated with Health Insurance Act 1973. It was introduced by Prime Minister (PM) Gough Whitlam's Labor Government, and was intended to provide affordable treatment by doctors in public hospitals for all resident citizens. Redesigned by PM Bob Hawke in 1984, the current Medicare system permits citizens the option to purchase private health insurance in a two-tier health system.[23]

Research and scholarship

Considering the rapid pace at which the fields of medicine and health science are developing, it becomes important to investigate the most proper and/or efficient methodologies for conducting research. On the whole, "the primary concern of the researcher must always be the phenomenon, from which the research question is derived, and only subsequent to this can decisions be made as to the most appropriate research methodology, design, and methods to fulfill the purposes of the research."[24] This statement on research methodology places the researcher at the forefront of his findings. That is, the researcher becomes the person who makes or breaks his or her scientific inquiries rather than the research itself. Even so, "interpretive research and scholarship are creative processes, and methods and methodology are not always singular, *a priori*, fixed and unchanging."[25] Therefore, viewpoints on scientific inquiries into healthcare matters "will continue to grow and

develop with the creativity and insight of interpretive researchers, as they consider emerging ways of investigating the complex social world."[26]

Clinical trials

Clinical trials are a means through which the healthcare industry tests a new drug, treatment, or medical device. The traditional methodology behind clinical trials consists of various phases in which the emerging product undergoes a series of intense tests, most of which tend to occur on interested and/or compliant patients. The U.S. government has an established network for tackling the emergence of new products in the healthcare industry. The Food and Drug Administration (FDA) does not conduct trials on new drugs coming from pharmaceutical companies.[27] Along with the FDA, the National Institutes of Health sets the guidelines for all kinds of clinical trials relating to infectious diseases. For cancer, the National Cancer Institute (NCI) sponsors a series or cooperative groups like CALGB and COG in order to standardize protocols for cancer treatment.[28]

Quality assurance

The primary purpose of quality assurance (QA) in healthcare is to ensure that the quality of patient care is in accordance with established guidelines. The government usually plays a significant role in providing structured guidance for treating a particular disease or ailment. However, protocols for treatment can also be worked out at individual healthcare institutions like hospitals and HMOs. In some cases, quality assurance is seen as a superfluous endeavor, as many healthcare-based QA organizations, like QARC, are publicly funded at the hands of taxpayers.[29] However, many people would agree that healthcare quality assurance, particularly in the areas cancer treatment and disease control are necessary components to the vitality of any legitimate healthcare system. With respect to quality assurance in cancer treatment scenarios, the Quality Assurance Review Center (QARC) is just one example of a QA facility that seeks "to improve the standards of care" for patients "by improving the quality of clinical trials medicine."[29]

Birth and death

Reproductive rights

The ecophilosophy of Garrett Hardin is one perspective from which to analyze the reproductive rights of human beings. For the most part, Hardin argues that it is immoral to have large families, especially since they do a disservice to society by consuming an excessive number of resources. In an essay titled *The Tragedy of the Commons*, Hardin states,

To couple the concept of freedom to breed with the belief that everyone born has an equal right to the commons is to lock the world into a tragic course of action.[30]

By encouraging the freedom to breed, the welfare state not only provides for children, but also sustains itself in the process. The net effect of such a policy is the inevitability of a Malthusian catastrophe.[*citation needed*]

Hardin's ecophilosophy reveals one particular method to mitigate healthcare costs. With respect to population growth, the fewer people there are to take care of, the less expensive healthcare will be. And in applying this logic to what medical ethicist Leonard J. Weber previously suggested, less expensive healthcare does not necessarily mean poorer quality healthcare.[14]

Birth and living, *Eugenics*

The concept of being "*well-born*" is not new, and may carry racist undertones. The Nazis practiced eugenics in order to cleanse the gene pool of what were perceived to be unwanted or harmful elements. This "race hygiene movement in Germany evolved from a theory of Social Darwinism, which had become popular throughout Europe" and the United States during the 1930s.[31] A German phrase that embodies the nature of this practice is *lebensunwertes Leben* or "life unworthy of life."[32]

In connection with healthcare philosophy, the theory of natural rights becomes a rather pertinent subject. After birth, man is effectively endowed with a series of natural rights that cannot be banished under any circumstances. One major proponent of natural rights theory was seventeenth-century English political philosopher John Locke. With regard to the natural rights of man, Locke states,

If God's purpose for me on Earth is my survival and that of my species, and the means to that survival are my life, health, liberty and property – then clearly I don't want anyone to violate my rights to these things.[33]

Although partially informed by his religious understanding of the world, Locke's statement can essentially be viewed as an affirmation of the right to preserve one's life at all costs. This point is precisely where healthcare as a human right becomes relevant.[*citation needed*]

The process of preserving and maintaining one's health throughout life is a matter of grave concern. At some point in every person's life, his or her health is going to decline regardless of all measures taken to prevent such a collapse. Coping with this inevitable decline can prove quite problematic for some people. For Enlightenment philosopher René Descartes, the depressing and gerontological implications of aging pushed him to believe in the prospects of immortality through a wholesome faith in the possibilities of reason.[34]

Death and dying, *Euthanasia*

One of the most basic human rights is the right to live, and thus, preserve one's life. Yet one must also consider the right to die, and thus, end one's life. Often, religious values of varying traditions influence this issue. Terms like "mercy killing" and "assisted suicide" are frequently used to describe this process. Proponents of euthanasia claim that it is particularly necessary for patients suffering from a terminal illness.[35] However, opponents of a self-chosen death purport that it is not only immoral, but wholly against the pillars of reason.

In a certain philosophical context, death can be seen as the ultimate existential moment in one's life. Death is the deepest cause of a primordial anxiety (*Die Anfechtung*) in a person's life. In this emotional state of anxiety, "the Nothing" is revealed to the person. According to twentieth-century German philosopher Martin Heidegger, The Nothing is the complete negation of the totality of beings.[36]

And thus, for Heidegger, humans find themselves in a very precarious and fragile situation (constantly hanging over the abyss) in this world. This concept can be simplified to the point where at bottom, all that a person has in this world is his or her Being. Regardless of how individuals proceed in life, their existence will always be marked by finitude and solitude. When considering near-death experiences, humans feel this primordial anxiety overcome them. Therefore, it is important for healthcare providers to recognize the onset of this entrenched despair in patients who are nearing their respective deaths.

Other philosophical investigations into death examine the healthcare's profession heavy reliance on science and technology (SciTech). This reliance is especially evident in Western medicine. Even so, Heidegger makes an allusion to this reliance in what he calls the allure or "character of exactness."[37] In effect, people are inherently attached to "exactness" because it gives them a sense of purpose or reason in a world that is largely defined by what appears to be chaos and irrationality. And as the moment of death is approaching, a moment marked by utter confusion and fear, people frantically attempt to pinpoint a final sense of meaning in their lives.[*citation needed*]

Aside from the role that SciTech plays in death, palliative care constitutes a specialized area of healthcare philosophy that specifically relates to patients who are terminally ill. Similar to hospice care, this area of healthcare philosophy is becoming increasingly important as more patients prefer to receive healthcare services in their homes. Even though the terms "palliative" and "hospice" are typically used interchangeably, they are actually quite different. As a patient nears the end of his life, it is more comforting to be in a private home-like setting instead of a hospital. Palliative care has generally been reserved for those who have a terminal illness. However, it is now being applied to patients in all kinds of medical situations, including chronic fatigue and other distressing symptoms.[38]

Role development

The manner in which nurses, physicians, patients, and administrators interact is crucial for the overall efficacy of a healthcare system. From the viewpoint of the patients, healthcare providers can be seen as being in a privileged position, whereby they have the power to alter the patients' quality of life. And yet, there are strict divisions among healthcare providers that can sometimes lead to an overall decline in the quality of patient care. When nurses and physicians are not on the same page with respect to a particular patient, a compromising situation may arise. Effects stemming from a "gender gap" between nurses and doctors are detrimental to the professional environment of a hospital workspace.[39]

Yorum

Sağlık Bakımının Felsefesi, Makalede temel alınanlar sunulacaktır, ancak Ülkemizde 1960 yılında oluşturulan Etik/Deontolojik yapılanma özetlemektedir.

Burada belirtilenler:

- Sağlık bakımını kim istemekte, kime gerekli görülmekte, her bireyin hakkı olarak görülmeli midir?

- Masrafların hesaplanmasında ele alınması gereken esaslar ne olmalıdır?
- Daha fazla hastaya en iyi nasıl sağlanacaktır?
- Ölçüm kriterleri ne olmalıdır?
- Konfor isteyenler için bu nasıl karşılanacaktır?

NOT: Burada tamamen ticari olarak bakıldığı, Ülkemizde ise hizmet esasında olduğu için, kısaca Sağlık konusunda hizmet olur ama ekonomi yapılamaz.
Her birey, doğmamış olsa bile bir varlık olduğu için, yaşam hakkı temelinde, sağlıklı yaşam hakkıdır ve bu sağlanmalıdır.

Burada soru olarak sorguladığı, SASĞLIK NE ANLAMA GELİR konusu olmaktadır. İnsan olmak, insanlığı yaşamak, insanca geleceği olmak, aktif, dinamik sevgide olunması boyutu gündeme gelmemektedir.

Ülkemizde uyulması gereken Deontolojik/Etik yaklaşımlar Tüzük ile Hukuksal boyuttadır[15]. Bunlar:

Madde 1 – Tabip ve diş tabiplerinin, deontoloji bakımından ***riayetle mükellef oldukları kaide ve esaslar*** *bu Nizamnamede gösterilmiştir.*
BİRİNCİ KISIM Umumi kaide ve esaslar Madde 2 – Tabip ve diş tabibinin ***başta gelen vazifesi, insan sağlığına, hayatına ve şahsiyetine ihtimam ve hürmet göstermektir***.
Tabip ve diş tabibi; ***hastanın cinsiyeti, ırkı, milliyeti, dini ve mezhebi, ahlaki düşünceleri, karakter ve şahsiyeti, içtimai seviyesi, mevkii ve siyasi kanaati ne olursa olsun, muayene ve tedavi hususunda azami dikkat ve ihtimamı göstermekle mükelleftir***.

Dolayısıyla yukarıda belirtilenler ülkemiz için geçerli bir yanı YOKTUR.

Uygulamalarda etik ilkeler: Tıbbi araştırmalarda Helsinki Bildirgesi dahil bazı uzmanlarca yaklaşımlara göre prensipler belirlenmiş, bu açıdan, bunlara uyum zorunluluğu vardır.

Etik ilkelerin uygulanma zorunluluğu: Ülkemizde yasal mevzuat içinde olduğundan, Mahkemeler ve ayrıca Tabipler Birliği doğrudan soruşturma ve ceza yaklaşımında bulunabilmektedirler. Elbette somut kanıt olmalıdır.

Ücretlerin ödenmesi ve sağlık sigortası: Ülkemizde sigortalı olup olmamasına göre yaklaşım her tıbbi kuruluşlarda yapılmakta, Sigortalı sigorta hastanesinde olma zorunluluğu kaldırılmıştır. Bunun yanında tüm hastalar doğrudan ücretleri Devlet tarafından karşılanmaktadır. Özel ücretlendirme hastanın konfor için ödediği para olmaktadır.

Doğum ve çocuk sahibi olma hakkı: Bir toplumda iki kişi olduğu için iki çocuk, nüfusun aynen korunması, üç çocuk ise bir artış anlamındadır. Çin tek çocuk derken, bugün bunu kaldırmıştır. Ülkemizde de doğum oranı 5'den 1,5 civarına indiği için, 3 çocuk ısrarı vardır. Bu nedenle çok çocuk olması teşvik kapsamındadır.

Yaşam Hakkı: Her varlığın yaşam hakkı vardır, buna hayvanlarda katılmaktadır, öldürülmeleri için gerekçe olmalıdır. Bu açıdan insan için bu yasal koruma altındadır ve ötenazi bilinçli ve kasıtlı öldürmeye girdiği için doğrudan suçtur.

Bir örnek sunulacak olursa, İzmir'de prematüre doğan çocuklarının iki hafta küvözde ve ventilatörde olmasını kabul etmeyen aile, savcılığa hekimleri şikâyet için gitmiş, çocuklarının çıkarılması, eziyet gördüğü, zaten ölecek ise, niye çektiriyorlar diyerek şikâyette bulunmuşlar.

Savcı dilekçelerini ve imzalarını aldıktan sonra anne ve babayı tutuklamış ve çocukları da Çocuk Koruma Kanunun 5'inci Maddesi gereği Devlet korumasına aldırmıştır.

Salık elemanları bir Rol Model olmaktadırlar. Türk Deontoloji Nizamnamesi: *Madde 7 – Tabip ve diş tabibi sanat ve mesleğinin icrası dışında dahi olsa,* ***meslek ahlak ve adabı ile telif edilemeyen hareketlerden kaçınır***.

NEONATOLOJİ AÇISINDAN: Çocuk sahibi olunması teşvik kapsamındadır ve ayrıca gebelik dahil tüm yaklaşımlarda yapılan masrafları Devlet ödemektedir.

Evlilik için faizsiz kredi ve uzun vade imkânı da sunulmaktadır.

Neonaticide, Wikipedia[16]

Neonaticide is the deliberate act of a parent murdering their own child during the first 24 hours of life.[1][2] As a noun, the word "neonaticide" may also refer to anyone who practices or who has practiced this.
Neonaticide is relatively rare in developed countries, but most of these murders remain secret:
"...every year, hundreds of women commit neonaticide: they kill their newborns or let them die. Most neonaticides remain undiscovered, but every once in a while, a janitor follows a trail of blood to a tiny body in a trash bin, or a woman faints and doctors find the remains of a placenta inside her."
— *Steven Pinker, The New York Times, 1997*[3]
Neonaticide is considerably more commonly committed by mothers than fathers; infanticide is also more likely to be committed by mothers than fathers. A 1999 United States Department of Justice study concluded that between 1976 and 1997 in the United States, mothers were responsible for a higher share of children killed during infancy, while fathers were more likely to have been responsible for the murders of children age eight or older.[4]

Statistics

90% of neonaticidal mothers are 25 years of age or younger. Less than 20% are married. Less than 30% are seen as psychotic or depressed.[5][6][7] They have typically denied or concealed the pregnancy since conception.[8][1]
45% of all child murders occur in the first 24 hours of life, and thus can be classified as neonaticide.[9] For the period 1982–1987, approximately 1.1% of all homicides have been of children under one year of age. 8–9% of all murders are of persons under 18 years of age. Of these, almost twice as many sons as compared to daughters are victims.[5] In half of the cases death occurs literally "at the hands of" the parent. Weapons are almost never used in neonaticide. Drowning, strangulation, head trauma, suffocation, and exposure to the elements are all common methods.[5]

Current law

Poland

Article 149 of the Penal Code of Poland stipulates that a mother who kills her child in labour, while under the influence of the course of the delivery, is punishable by imprisonment of three months to five years.[10]

Romania

The new Penal Code of Romania, which came into force in 2014, resolved the issues of the previous Code, under which the law was unclear. Article 200 of the new Penal Code stipulates that the killing of a newborn during the first 24 hours, by the mother who is in a state of mental distress, shall be punished with imprisonment of one to five years.[11]

United States

Under the Born-Alive Infants Protection Act of 2002, a woman who gives childbirth after an attempted abortion is the mother of a born-alive infant if the infant is observed with any of the following signs of life: breathing, heartbeat, pulsation of the umbilical cord, or confirmed voluntary muscle movement, regardless of the gestational age of the child. Although medical guidelines recommend withholding resuscitation for infants with practically no chance of surviving, and allow parental discretion if the chance of survival is marginal, any child that has a better-than-marginal chance of survival who is allowed to die would be considered the victim of infanticide or neonaticide.[12][13]

History

An early reference to filicide (the killing of a child by a parent) is in Greek mythology. In his play *Medea*, Euripides portrayed Medea as having killed her two sons after Jason abandoned her for the daughter of the King of Corinth[14] giving us what has been termed the Medea Complex.[15] Under the Roman Law, *patria potestas*, the right of a father to kill his own children was protected.[16][17] It was not until the 4th century that the Roman state, influenced by Christianity, began to regard filicide as a crime. Still, mothers who killed their infants or newborns received lesser sentences under both the laws of the church and the state.[18][19] The church consistently dealt more leniently with those mothers whose children died by overlaying, an accidental death by smothering when a sleeping parent rolled over on the infant. The opinions of the church in these deaths may reflect an awareness of one of society's first attempts to understand the severe problem of overpopulation and overcrowding.[20] England has traditionally viewed infanticide as a "special crime," passing its first Infanticide Act in 1623 under the Stuarts and more recently in the Infanticide Acts of 1922 and 1938.[21][22] Most recently England passed the Infanticide Act of 1978 which allows a lesser sentence for attempted infanticide.[23] Unlike England and other European countries, the United States has not adopted special statutes to deal with infanticide or neonaticide. Nonetheless, juries and judges, as reflected in their verdicts and sentences, have consistently considered the difficulties and stresses of a mother during the post-partum period.[24]

Modern times

Australia

In June 2016 it was reported that 27 babies were born in Queensland hospitals in 2015, only to later die after not receiving care.[25] This was also reported to be happening as early as 2007 in Victoria, where 52 babies were born alive after failed late-term abortions[26] and were "simply put on a shelf and left to die."[27][28] This is generally accepted as fitting the definition of infanticide in Victoria[29] and other states.

Cultural aspects

The Chinese, as late as the 20th century, killed newborn daughters because they were unable to transmit the family name. Additionally, daughters were viewed as weaker and not as useful in time of war or for agricultural work. In the past, Inuit killed infants with known congenital anomalies and often one of a set of twins.[30] Similarly, Mohave Indians had killed all children of racially mixed ancestry at birth.[31]

In their 1981 paper, Sakuta and Saito[32] reviewed infanticide in Japan and describe the two distinct types of infanticide commonly seen. The Mabiki type corresponds to the ancient means of "thinning out" or population control; the Anomie type, a product of modern society, corresponds to the "unwanted child."

Prevention

A number of studies have evaluated risk factors in infant homicide with the aim of preventing it.[1]

Anonymous delivery, a system where mothers can give birth in a hospital for free without showing ID, has been found to reduce the rate of police reported neonaticides in Austria.[33]

Baby hatch

In the Middle Ages and in the 18th and 19th centuries, a "foundling wheel" system was used where mothers could leave them anonymously to be found and cared for. In modern times, baby hatch systems have been introduced in hospitals and other areas to allow mothers to leave children.[34][35]

The hatches are usually in hospitals, social centres, or churches, and consist of a door or flap in an outside wall which opens onto a soft bed, heated or at least insulated. Sensors in the bed alert carers when a baby has been put in it so that they can come and take care of the child. In Germany, babies are first looked after for eight weeks during which the mother can return and claim her child without any legal repercussions. If this does not happen, after eight weeks the child is put up for adoption.[*citation needed*]

Yorum

Annenin kendi çocuğunun ölmesine neden olması: Hiçbir anne çocuğunun öldürmek istemez, ama çeşitli boyutlar ile çocuğun ölmesine neden olabilmektedir. Bu gizli olmasının ötesinde, Kadım-Doğum Uzmanları plasenta kalması yüzünden annelerin rahimlerinde yaptıkları işlem nedeniyle daha net ortaya çıkabilmektedir.

Babaların öldürme boyutunun Amerika'da 8 yaş ve üstünde daha öne çıktığı belirtilmektedir.

NEONATOLOJİ AÇISINDAN: Bebek sahibi olmak gebelik değil, daha önceden oluşmalı, sevgi ve insanlık kapsamı içinde, Devlet dahil bunun tümden desteklendiği açık ortaya konulmalıdır.

Annelerin maddi, manevi ve sosyal desteğinin sağlanması, bir fahişe gibi ortada kalmaması çok önemlidir. Ülkemizde bu açıdan Devlet kurumlarının etkin olduğu bilinmektedir. Batıda kendi ekmeğini kazanması için, bu yolda kalmak zorunda oldukları gözlenmektedir.

İstatistiksel durum: Genel Dünya rakamları olarak %90 üzerinde 25 yaş ve altındadırlar. %20 oranın altında evlidirler. %30 oranının altında ruhsal sorunlu kadınlardır. %45 oranında doğumdan sonra ilk gün içinde olmaktadır. Bundan sonra da 1 yaş altında %1.1 ve 18 yaş altında da %8-9 oranında olduğu ifade edilmektedir.

Bu rakamlar Ülkemiz için inanılmaz bir orandır. Ülkemizde büyük aile yapısı olduğu için bu durumlarda çocuklar teyze, hala gibi yapılar tarafından koruma altına alınmaktadır. Bizde sorun, geçim derdine bağlı olan, çaresizlik boyutudur. Halen Sosyal Yardımlaşma Kurumu, maaş almayan kişilere sosyal destek sağlaması, kömür dağıtması ile de bir denge kurmaya çalışmaktadır.

Çocuğu tehlikede iken yardım etmeyenlerin gerekçesi de bilgisizlik olarak tanımlanması ile de öldürme denilemeyeceği açıktır. Bu taksir, hata ve kusur kısmına girer. Bunun ispatı ve somut kanıtlanması gerekir, sözel itham ile oluşmaz.

Çocuk Terk etmek daha yaygındır. Kapılara bırakılan çocukların anne ve babası genetik olarak saptansa bile Devlet bu bebekleri bakmakta, ailelerine vermesi ancak hâkim kararı ile olmaktadır.

Sosyal Yardımlaşma Kurumu, çocuk edindirme programları ile etkin çalışmaktadır.

Tedavi Yaklaşımı

Zamanımızda tedavi yaklaşımları esastan değiştiği algılanmalıdır. Bu sadece insanlar için değil, tüm varlıklar içinde geçerlidir.
Bahçenize bir papatya (Bellis perennis), yetiştiriyorsunuz. Bunda sarı benekli şeklinde küf oluştu ve bitki çürüyüp, yok ediyor.
Yapılacaklar başlıca; a) İnfekte olanları topla ve yok et. Çevredeki yabani otlardan geliyor, dolayısıyla bahçeyi sağlıklı tutmak olanaksız oluyor.
Bu durumda, b) Küf için ilaçlar, kükürt ve diğerlerini, ziraat uzmanları önerisi olarak kullanmalı. Faydasız, çünkü içine işlemiş, deri değil, iç organları tutan bir mantar infeksiyonu yapısında,
c) İnternet kanalı ile mantar/küf tipini bulmak, buna karşı literatür etkin madde bulmak ve mücadele etmek. Yerel yerlerde bu bilgi yok, o zaman onlarla bilimsel bir zeminde buluşmak ve ilacı almak. Ancak zor olan, niye bu pahalı ilacı alıyorsun, bitkilere kullanıyorsun sorusuna cevap bulmanız gerekir. Cevap, tedaviye her boyutta, her varlığın hakkı vardır olmalıdır. Ters yaklaşan dükkândan da bir daha alış-veriş yapılmaz zaten.

Aynı durum, bana söylenen, prematürelerde sekel, özürlü oranı çok yüksek, onları yaşatmak ile toplumda engelli arttırmıyor musun sorusudur. *Cevap: 1) İnsanın, varlığın yaşama hakkı vardır, bu sağlanmalıdır. 2) Tedavi edilmediği için, 5 dakika sonra yaklaşıldığı için sorunlu*

oluyorlar, derhal doğumda olunca olmaz. Benim bebeklerim gebelikten gelmiyorsa, hiç oksijensiz kalmadılar. Binlercesi öldü denilirken şimdi yaşıyor, evlendiler, çocukları bile oldu. 3) Özürlü olan onlar değil, bizleriz, onlar engelli ama insan, engelleri aşılabilir. Özürlü düşüncelerin ise aşılamaz. 4) Topluma nüfus artışı ve sağlıklı insan oluşturduğum için tenkit edilebilir, ama tenkit edenin de insanlığından şüphe duyarım derim.

Medication, Wikipedia[17]

A **medication** (also called **medicament**, **medicine**, **pharmaceutical drug**, **medicinal drug** or simply **drug**) is a drug used to diagnose, cure, treat, or prevent disease.[1][2] Drug therapy (pharmacotherapy) is an important part of the medical field and relies on the science of pharmacology for continual advancement and on pharmacy for appropriate management.

Drugs are classified in many ways. One of the key divisions is by level of control, which distinguishes prescription drugs (those that a pharmacist dispenses only on the order of a physician, physician assistant, or qualified nurse) from over-the-counter drugs (those that consumers can order for themselves). Another key distinction is between traditional small molecule drugs, usually derived from chemical synthesis, and biopharmaceuticals, which include recombinant proteins, vaccines, blood products used therapeutically (such as IVIG), gene therapy, monoclonal antibodies and cell therapy (for instance, stem cell therapies). Other ways to classify medicines are by mode of action, route of administration, biological system affected, or therapeutic effects. An elaborate and widely used classification system is the Anatomical Therapeutic Chemical Classification System. The World Health Organization keeps a list of essential medicines.

Drug discovery and drug development are complex and expensive endeavors undertaken by pharmaceutical companies, academic scientists, and governments. As a result of this complex path from discovery to commercialization, partnering has become a standard practice for advancing drug candidates through development pipelines. Governments generally regulate what drugs can be marketed, how drugs are marketed, and in some jurisdictions, drug pricing. Controversies have arisen over drug pricing and disposal of used drugs.

Definition

Medication is a medicine or a chemical compound used to treat or cure illness. According to *Encyclopædia Britannica*, medication is "a substance used in treating a disease or relieving pain".[3]

As defined by the National Cancer Institute, dosage forms of medication can include tablets, capsules, liquids, creams, and patches. Medications can be given in different ways, such as by mouth, by infusion into a vein, or by drops put into the ear or eye. A medication that does not contain an active ingredient and is used in research studies is called a placebo.[4]

In Europe, the term is "medicinal product", and it is defined by EU law as:

- "Any substance or combination of substances presented as having properties for treating or preventing disease in human beings; or"
- "Any substance or combination of substances which may be used in or administered to human beings either with a view to restoring, correcting or modifying physiological functions by exerting a pharmacological, immunological or metabolic action or to making a medical diagnosis."[5]:36

In the US, a "drug" is:

- A substance (other than food) intended to affect the structure or any function of the body.
- A substance intended for use as a component of a medicine but not a device or a component, part, or accessory of a device.
- A substance intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease.
- A substance recognized by an official pharmacopeia or formulary.
- Biological products are included within this definition and are generally covered by the same laws and regulations, but differences exist regarding their manufacturing processes (chemical process versus biological process).[6]

Usage

Drug use among elderly Americans has been studied; in a group of 2377 people with an average age of 71 surveyed between 2005 and 2006, 84% took at least one prescription drug, 44% took at least one over-the-counter (OTC) drug, and 52% took at least one dietary supplement; in a group of 2245 elderly Americans (average age of 71) surveyed over the period 2010 – 2011, those percentages were 88%, 38%, and 64%.[7]

Classification

One of the key classifications is between traditional small molecule drugs; usually derived from chemical synthesis and biological medical products; which include recombinant proteins, vaccines, blood products used therapeutically (such as IVIG), gene therapy, and cell therapy (for instance, stem cell therapies).[*citation needed*]

Pharmaceuticals or drugs or medicines are classified into various other groups besides their origin on the basis of pharmacological properties like mode of action and their pharmacological action or activity,[8] such as by chemical properties, mode or route of administration, biological system affected, or therapeutic effects. An elaborate and widely used classification system is the Anatomical Therapeutic Chemical Classification System (ATC system). The World Health Organization keeps a list of essential medicines.

A sampling of classes of medicine includes:

1. Antipyretics: reducing fever (pyrexia/pyresis)
2. Analgesics: reducing pain (painkillers)
3. Antimalarial drugs: treating malaria
4. Antibiotics: inhibiting germ growth
5. Antiseptics: prevention of germ growth near burns, cuts,and wounds
6. Mood stabilizers: lithium and valproate
7. Hormone replacements: Premarin
8. Oral contraceptives: Enovid, "biphasic" pill, and "triphasic" pill
9. Stimulants: methylphenidate, amphetamine
10. Tranquilizers: meprobamate, chlorpromazine, reserpine, chlordiazepoxide, diazepam, and alprazolam
11. Statins: lovastatin, pravastatin, and simvastatin

Pharmaceuticals may also be described as "specialty", independent of other classifications, which is an ill-defined class of drugs that might be difficult to administer, require special handling during administration, require patient monitoring during and immediately after administration, have particular regulatory requirements restricting their use, and are generally expensive relative to other drugs.[9]

Types of medicines

For the digestive system

- Lower digestive tract: laxatives, antispasmodics, antidiarrhoeals, bile acid sequestrants, opioids.
- Upper digestive tract: antacids, reflux suppressants, antiflatulents, antidopaminergics, proton pump inhibitors (PPIs), H_2-receptor antagonists, cytoprotectants, prostaglandin analogues.

For the cardiovascular system

- Affecting blood pressure/(antihypertensive drugs): ACE inhibitors, angiotensin receptor blockers, beta-blockers, α blockers, calcium channel blockers, thiazide diuretics, loop diuretics, aldosterone inhibitors.
- Coagulation: anticoagulants, heparin, antiplatelet drugs, fibrinolytics, anti-hemophilic factors, haemostatic drugs.
- General: β-receptor blockers ("beta blockers"), calcium channel blockers, diuretics, cardiac glycosides, antiarrhythmics, nitrate, antianginals, vasoconstrictors, vasodilators.
- HMG-CoA reductase inhibitors (statins) for lowering LDL cholesterol inhibitors: hypolipidaemic agents.

For the central nervous system

Drugs affecting the central nervous system include psychedelics, hypnotics, anaesthetics, antipsychotics, eugeroics, antidepressants (including tricyclic antidepressants, monoamine oxidase inhibitors, lithium salts, and selective serotonin reuptake inhibitors (SSRIs)), antiemetics, anticonvulsants/antiepileptics, anxiolytics, barbiturates, movement disorder (e.g., Parkinson's disease) drugs, nootropics, stimulants (including amphetamines), benzodiazepines, cyclopyrrolones, dopamine antagonists, antihistamines, cholinergic, anticholinergics, emetics, cannabinoids, and 5-HT (serotonin) antagonists.

For pain

The main classes of painkillers are NSAIDs, opioids, and local anesthetics.

For consciousness (anesthetic drugs)

Some anesthetics include benzodiazepines and barbiturates.

For musculoskeletal disorders

The main categories of drugs for musculoskeletal disorders are: NSAIDs (including COX-2 selective inhibitors), muscle relaxants, neuromuscular drugs, and anticholinesterases.

For the eye

- Anti-allergy: mast cell inhibitors.
- Anti-fungal: imidazoles, polyenes.
- Anti-glaucoma: adrenergic agonists, beta-blockers, carbonic anhydrase inhibitors/hyperosmotics, cholinergics, miotics, parasympathomimetics, prostaglandin agonists/prostaglandin inhibitors, nitroglycerin.
- Anti-inflammatory: NSAIDs, corticosteroids.
- Antibacterial: antibiotics, topical antibiotics, sulfa drugs, aminoglycosides, fluoroquinolones.
- Antiviral drugs.
- Diagnostic: topical anesthetics, sympathomimetics, parasympatholytics, mydriatics, cycloplegics.
- General: adrenergic neurone blocker, astringent.

For the ear, nose, and oropharynx

Antibiotics, sympathomimetics, antihistamines, anticholinergics, NSAIDs, corticosteroids, antiseptics, local anesthetics, antifungals, and cerumenolytics.

For the respiratory system

Bronchodilators, antitussives, mucolytics, decongestants, inhaled and systemic corticosteroids, beta2-adrenergic agonists, anticholinergics, mast cell stabilizers, leukotriene antagonists.

For endocrine problems

Androgens, antiandrogens, estrogens, gonadotropin, corticosteroids, human growth hormone, insulin, antidiabetics (sulfonylureas, biguanides/metformin, thiazolidinediones, insulin), thyroid hormones, antithyroid drugs, calcitonin, diphosphonate, vasopressin analogues.

For the reproductive system or urinary system

Antifungal, alkalinizing agents, quinolones, antibiotics, cholinergics, anticholinergics, antispasmodics, 5-alpha reductase inhibitor, selective alpha-1 blockers, sildenafils, fertility medications.

For contraception

- Hormonal contraception.
- Ormeloxifene.
- Spermicide.

For obstetrics and gynecology

NSAIDs, anticholinergics, haemostatic drugs, antifibrinolytics, Hormone Replacement Therapy (HRT), bone regulators, beta-receptor agonists, follicle stimulating hormone, luteinising hormone, LHRH, gamolenic acid, gonadotropin release inhibitor, progestogen, dopamine agonists, oestrogen, prostaglandins, gonadorelin, clomiphene, tamoxifen, diethylstilbestrol.

For the skin

Emollients, anti-pruritics, antifungals, antiseptics, scabicides, pediculicides, tar products, vitamin A derivatives, vitamin D analogues, keratolytics, abrasives, systemic antibiotics, topical antibiotics, hormones, desloughing agents, exudate absorbents, fibrinolytics, proteolytics, sunscreens, antiperspirants, corticosteroids, immune modulators.

For infections and infestations

Antibiotics, antifungals, antileprotics, antituberculous drugs, antimalarials, anthelmintics, amoebicides, antivirals, antiprotozoals, probiotics, prebiotics, antitoxins, and antivenoms.

For the immune system

Vaccines, immunoglobulins, immunosuppressants, interferons, and monoclonal antibodies.

For allergic disorders

Anti-allergics, antihistamines, NSAIDs,[*medical citation needed*] corticosteroids.

For nutrition

Tonics, electrolytes and mineral preparations (including iron preparations and magnesium preparations), parenteral nutrition, vitamins, anti-obesity drugs, anabolic drugs, haematopoietic drugs, food product drugs.

For neoplastic disorders

Cytotoxic drugs, therapeutic antibodies, sex hormones, aromatase inhibitors, somatostatin inhibitors, recombinant interleukins, G-CSF, erythropoietin.

For diagnostics

Contrast media.

For euthanasia

A euthanaticum is used for euthanasia and physician-assisted suicide. Euthanasia is not permitted by law in many countries, and consequently, medicines will not be licensed for this use in those countries.

Administration

A single drug may contain single or multiple active ingredients.

The administration is the process by which a patient takes medicine. There are three major categories of drug administration: enteral (via the human gastrointestinal tract), injection into the body, and by other routes (dermal, nasal, ophthalmic, otologic, and urogenital).[10]

Oral administration, the most common form of enteral administration, can be performed using various dosage forms including tablets or capsules and liquid such as syrup or suspension. Other ways to take the medication include buccally (placed inside the cheek), sublingually (placed underneath the tongue), eye and ear drops (dropped into the eye or ear), and transdermally (applied to the skin).[11]

They can be administered in one dose, as a bolus. Administration frequencies[12] are often abbreviated from Latin, such as *every 8 hours* reading Q8H from *Quaque VIII Hora*. The drug frequencies are often expressed as the number of times a drug is used per day (e.g., four times a day). It[*specify*] may include event-related information (e.g., 1 hour before meals, in the morning, at bedtime), or complimentary to an interval, although equivalent expressions may have different implications (e.g., every 8 hours versus 3 times a day).[*citation needed*]

Drug discovery

In the fields of medicine, biotechnology, and pharmacology, drug discovery is the process by which new drugs are discovered.[*citation needed*]

Historically, drugs were discovered by identifying the active ingredient from traditional remedies or by serendipitous discovery. Later chemical libraries of synthetic small molecules, natural products, or extracts were screened in intact cells or whole organisms to identify substances that have a desirable therapeutic effect in a process known as classical pharmacology. Since sequencing of the human genome which allowed rapid cloning and synthesis of large quantities of purified proteins, it has become common practice to use high throughput screening of large compound libraries against isolated biological targets which are hypothesized to be disease-modifying in a process known as reverse pharmacology. Hits from these screens are then tested in cells and then in animals for efficacy. Even more recently, scientists have been able to understand the shape of biological molecules at the atomic level and to use that knowledge to design (see drug design) drug candidates.[*citation needed*]

Modern drug discovery involves the identification of screening hits, medicinal chemistry, and optimization of those hits to increase the affinity, selectivity (to reduce the potential of side effects), efficacy/potency, metabolic stability (to increase the half-life), and oral bioavailability. Once a compound that fulfills all of these requirements has been identified, it will begin the process of drug development prior to clinical trials. One or more of these steps may, but not necessarily, involve computer-aided drug design.

Despite advances in technology and understanding of biological systems, drug discovery is still a lengthy, "expensive, difficult, and inefficient process" with a low rate of new therapeutic discovery.[13] In 2010, the research and development cost of each new molecular entity (NME) was approximately US$1.8 billion.[14] Drug discovery is done by pharmaceutical companies, sometimes with research assistance from universities. The "final product" of drug discovery is a patent on the potential drug. The drug requires very expensive Phase I, II, and III clinical trials, and most of them fail. Small companies have a critical role, often then selling the rights to larger companies that have the resources to run the clinical trials.

Drug discovery is different from Drug Development. Drug Discovery is often considered the process of identifying new medicine. At the same time, Drug development is delivering a new drug molecule into clinical

practice. In its broad definition, this encompasses all steps from the basic research process of finding a suitable molecular target to supporting the drug's commercial launch.

Development

Drug development is the process of bringing a new drug to the market once a lead compound has been identified through the process of drug discovery. It includes pre-clinical research (microorganisms/animals) and clinical trials (on humans) and may include the step of obtaining regulatory approval to market the drug.[15][16]

Drug Development Process

Discovery: The Drug Development process starts with Discovery, a process of identifying a new medicine.

Development: Chemicals extracted from natural products are used to make pills, capsules, or syrups for oral use. Injections for direct infusion into the blood drops for eyes or ears.

Preclinical research: Drugs go under laboratory or animal testing, to ensure that they can be used on Humans.

Clinical testing: The drug is used on people to confirm that it is safe to use.

FDA Review: drug is sent to FDA before launching the drug into the market.

FDA post-Market Review: The drug is reviewed and monitored by FDA for the safety once it is available to the public.

Regulation

The regulation of drugs varies by jurisdiction. In some countries, such as the United States, they are regulated at the national level by a single agency. In other jurisdictions, they are regulated at the state level, or at both state and national levels by various bodies, as is the case in Australia. The role of therapeutic goods regulation is designed mainly to protect the health and safety of the population. Regulation is aimed at ensuring the safety, quality, and efficacy of the therapeutic goods which are covered under the scope of the regulation. In most jurisdictions, therapeutic goods must be registered before they are allowed to be marketed. There is usually some degree of restriction on the availability of certain therapeutic goods depending on their risk to consumers.[*citation needed*]

Depending upon the jurisdiction, drugs may be divided into over-the-counter drugs (OTC) which may be available without special restrictions, and prescription drugs, which must be prescribed by a licensed medical practitioner in accordance with medical guidelines due to the risk of adverse effects and contraindications. The precise distinction between OTC and prescription depends on the legal jurisdiction. A third category, "behind-the-counter" drugs, is implemented in some jurisdictions. These do not require a prescription, but must be kept in the dispensary, not visible to the public, and be sold only by a pharmacist or pharmacy technician. Doctors may also prescribe prescription drugs for off-label use – purposes which the drugs were not originally approved for by the regulatory agency. The Classification of Pharmaco-Therapeutic Referrals helps guide the referral process between pharmacists and doctors.

The International Narcotics Control Board of the United Nations imposes a world law of prohibition of certain drugs. They publish a lengthy list of chemicals and plants whose trade and consumption (where applicable) are forbidden. OTC drugs are sold without restriction as they are considered safe enough that most people will not hurt themselves accidentally by taking it as instructed.[17] Many countries, such as the United Kingdom have a third category of "pharmacy medicines", which can be sold only in registered pharmacies by or under the supervision of a pharmacist.

Medical errors include over-prescription and polypharmacy, mis-prescription, contraindication and lack of detail in dosage and administration instructions. In 2000 the definition of a prescription error was studied using a Delphi method conference; the conference was motivated by ambiguity in what a prescription error is and a need to use a uniform definition in studies.[18]

Drug pricing

In many jurisdictions, drug prices are regulated.

United Kingdom

In the UK, the Pharmaceutical Price Regulation Scheme is intended to ensure that the National Health Service is able to purchase drugs at reasonable prices. The prices are negotiated between the Department of Health, acting with the authority of Northern Ireland and the UK Government, and the representatives of the Pharmaceutical industry brands, the Association of the British Pharmaceutical Industry (ABPI). For 2017 this payment percentage set by the PPRS will be 4,75%.[19]

Canada

In Canada, the Patented Medicine Prices Review Board examines drug pricing and determines if a price is excessive or not. In these circumstances, drug manufacturers must submit a proposed price to the appropriate regulatory agency. Furthermore, "the International Therapeutic Class Comparison Test is responsible for comparing the National Average Transaction Price of the patented drug product under review"[20] different countries that the prices are being compared to are the following: France, Germany, Italy, Sweden, Switzerland, the United Kingdom, and the United States[20]

Brazil

In Brazil, the prices are regulated through legislation under the name of *Medicamento Genérico* (generic drugs) since 1999.[21]

India

In India, drug prices are regulated by the National Pharmaceutical Pricing Authority.

United States

In the United States, drug costs are partially unregulated, but instead are the result of negotiations between drug companies and insurance companies.[22]

High prices have been attributed to monopolies given to manufacturers by the government.[23] New drug development costs continue to rise as well. Despite the enormous advances in science and technology, the number of new blockbuster drugs approved by the government per billion dollars spent has halved every 9 years since 1950.[24]

Blockbuster drug, list of largest selling pharmaceutical products

A blockbuster drug is a drug that generates more than $1 billion in revenue for a pharmaceutical company in a single year.[25] Cimetidine was the first drug ever to reach more than $1 billion a year in sales, thus making it the first blockbuster drug.[26]

In the pharmaceutical industry, a blockbuster drug is one that achieves acceptance by prescribing physicians as a therapeutic standard for, most commonly, a highly prevalent chronic (rather than acute) condition. Patients often take the medicines for long periods.[27]

History

Prescription drug history

Antibiotics first arrived on the medical scene in 1932 thanks to Gerhard Domagk;[28] and were coined the "wonder drugs". The introduction of the sulfa drugs led to the mortality rate from pneumonia in the U.S. to drop from 0.2% each year to 0.05% by 1939.[29] Antibiotics inhibit the growth or the metabolic activities of bacteria and other microorganisms by a chemical substance of microbial origin. Penicillin, introduced a few years later, provided a broader spectrum of activity compared to sulfa drugs and reduced side effects. Streptomycin, found in 1942, proved to be the first drug effective against the cause of tuberculosis and also came to be the best known of a long series of important antibiotics. A second generation of antibiotics was introduced in the 1940s: aureomycin and chloramphenicol. Aureomycin was the best known of the second generation.[*citation needed*]

Lithium was discovered in the 19th century for nervous disorders and its possible mood-stabilizing or prophylactic effect; it was cheap and easily produced. As lithium fell out of favor in France, valpromide came into play. This antibiotic was the origin of the drug that eventually created the mood stabilizer category. Valpromide had distinct psychotrophic effects that were of benefit in both the treatment of acute manic states and in the maintenance treatment of manic depression illness. Psychotropics can either be sedative or stimulant; sedatives aim at damping down the extremes of behavior. Stimulants aim at restoring normality by increasing tone. Soon arose the notion of a tranquilizer which was quite different from any sedative or stimulant. The term tranquilizer took over the notions of sedatives and became the dominant term in the West through the 1980s. In Japan, during this time, the term tranquilizer produced the notion of a psyche-stabilizer and the term mood stabilizer vanished.[30]

Premarin (conjugated estrogens, introduced in 1942) and Prempro (a combination estrogen-progestin pill, introduced in 1995) dominated the hormone replacement therapy (HRT) during the 1990s. HRT is not a life-saving drug, nor does it cure any disease. HRT has been prescribed to improve one's quality of life. Doctors prescribe estrogen for their older female patients both to treat short-term menopausal symptoms and to prevent long-term diseases. In the 1960s and early 1970s, more and more physicians began to prescribe

estrogen for their female patients. between 1991 and 1999, Premarin was listed as the most popular prescription and best-selling drug in America.[30]

The first oral contraceptive, Enovid, was approved by FDA in 1960. Oral contraceptives inhibit ovulation and so prevent conception. Enovid was known to be much more effective than alternatives including the condom and the diaphragm. As early as 1960, oral contraceptives were available in several different strengths by every manufacturer. In the 1980s and 1990s, an increasing number of options arose including, most recently, a new delivery system for the oral contraceptive via a transdermal patch. In 1982, a new version of the Pill was introduced, known as the "biphasic" pill. By 1985, a new triphasic pill was approved. Physicians began to think of the Pill as an excellent means of birth control for young women.[30]

Stimulants such as Ritalin (methylphenidate) came to be pervasive tools for behavior management and modification in young children. Ritalin was first marketed in 1955 for narcolepsy; its potential users were middle-aged and the elderly. It was not until sometime in the 1980s along with hyperactivity in children that Ritalin came onto the market. Medical use of methlyphenidate is predominantly for symptoms of attention deficit/hyperactivity disorder (ADHD). Consumption of methylphenidate in the U.S. out-paced all other countries between 1991 and 1999. Significant growth in consumption was also evident in Canada, New Zealand, Australia, and Norway. Currently, 85% of the world's methylphenidate is consumed in America.[30]

The first minor tranquilizer was Meprobamate. Only fourteen months after it was made available, meprobamate had become the country's largest-selling prescription drug. By 1957, meprobamate had become the fastest-growing drug in history. The popularity of meprobamate paved the way for Librium and Valium, two minor tranquilizers that belonged to a new chemical class of drugs called the benzodiazepines. These were drugs that worked chiefly as anti-anxiety agents and muscle relaxants. The first benzodiazepine was Librium. Three months after it was approved, Librium had become the most prescribed tranquilizer in the nation. Three years later, Valium hit the shelves and was ten times more effective as a muscle relaxant and anti-convulsant. Valium was the most versatile of the minor tranquilizers. Later came the widespread adoption of major tranquilizers such as chlorpromazine and the drug reserpine. In 1970, sales began to decline for Valium and Librium, but sales of new and improved tranquilizers, such as Xanax, introduced in 1981 for the newly created diagnosis of panic disorder, soared.[30]

Mevacor (lovastatin) is the first and most influential statin in the American market. The 1991 launch of Pravachol (pravastatin), the second available in the United States, and the release of Zocor (simvastatin) made Mevacor no longer the only statin on the market. In 1998, Viagra was released as a treatment for erectile dysfunction.[30]

Ancient pharmacology

Using plants and plant substances to treat all kinds of diseases and medical conditions is believed to date back to prehistoric medicine.[*citation needed*]

The Kahun Gynaecological Papyrus, the oldest known medical text of any kind, dates to about 1800 BC and represents the first documented use of any kind of drug.[31][32] It and other medical papyri describe Ancient Egyptian medical practices, such as using honey to treat infections and the legs of bee-eaters to treat neck pains. Ancient Babylonian medicine demonstrated the use of medication in the first half of the 2nd millennium BC. Medicinal creams and pills were employed as treatments.[33]

On the Indian subcontinent, the Atharvaveda, a sacred text of Hinduism whose core dates from the second millennium BC, although the hymns recorded in it are believed to be older, is the first Indic text dealing with medicine. It describes plant-based drugs to counter diseases.[34] The earliest foundations of ayurveda were built on a synthesis of selected ancient herbal practices, together with a massive addition of theoretical conceptualizations, new nosologies and new therapies dating from about 400 BC onwards.[35] The student of Āyurveda was expected to know ten arts that were indispensable in the preparation and application of his medicines: distillation, operative skills, cooking, horticulture, metallurgy, sugar manufacture, pharmacy, analysis and separation of minerals, compounding of metals, and preparation of alkalis.

The Hippocratic Oath for physicians, attributed to fifth century BC Greece, refers to the existence of "deadly drugs", and ancient Greek physicians imported drugs from Egypt and elsewhere.[36] The pharmacopoeia *De materia medica*, written between 50 and 70 CE by the Greek physician Pedanius Dioscorides, was widely read for more than 1,500 years.[37]

Medieval pharmacology

Al-Kindi's ninth century AD book, *De Gradibus* and Ibn Sina (Avicenna)'s *The Canon of Medicine*, covers a range of drugs known to the practice of medicine in the medieval Islamic world.
Medieval medicine of Western Europe saw advances in surgery compared to previously, but few truly effective drugs existed, beyond opium (found in such extremely popular drugs as the "Great Rest" of the Antidotarium Nicolai at the time)[38] and quinine. Folklore cures and potentially poisonous metal-based compounds were popular treatments. Theodoric Borgognoni, (1205–1296), one of the most significant surgeons of the medieval period, responsible for introducing and promoting important surgical advances including basic antiseptic practice and the use of anaesthetics. Garcia de Orta described some herbal treatments that were used.[*vague*]

Modern pharmacology

For most of the 19th century, drugs were not highly effective, leading Oliver Wendell Holmes Sr. to famously comment in 1842 that "if all medicines in the world were thrown into the sea, it would be all the better for mankind and all the worse for the fishes".[27]:21
During the First World War, Alexis Carrel and Henry Dakin developed the Carrel-Dakin method of treating wounds with an irrigation, Dakin's solution, a germicide which helped prevent gangrene.
In the inter-war period, the first anti-bacterial agents such as the sulpha antibiotics were developed. The Second World War saw the introduction of widespread and effective antimicrobial therapy with the development and mass production of penicillin antibiotics, made possible by the pressures of the war and the collaboration of British scientists with the American pharmaceutical industry.
Medicines commonly used by the late 1920s included aspirin, codeine, and morphine for pain; digitalis, nitroglycerin, and quinine for heart disorders, and insulin for diabetes. Other drugs included antitoxins, a few biological vaccines, and a few synthetic drugs. In the 1930s, antibiotics emerged: first sulfa drugs, then penicillin and other antibiotics. Drugs increasingly became "the center of medical practice".[27]:22 In the 1950s, other drugs emerged including corticosteroids for inflammation, rauvolfia alkaloids as tranquilizers and antihypertensives, antihistamines for nasal allergies, xanthines for asthma, and typical antipsychotics for psychosis.[27]:23–24 As of 2007, thousands of approved drugs have been developed. Increasingly, biotechnology is used to discover biopharmaceuticals.[27] Recently, multi-disciplinary approaches have yielded a wealth of new data on the development of novel antibiotics and antibacterials and on the use of biological agents for antibacterial therapy.[39]
In the 1950s, new psychiatric drugs, notably the antipsychotic chlorpromazine, were designed in laboratories and slowly came into preferred use. Although often accepted as an advance in some ways, there was some opposition, due to serious adverse effects such as tardive dyskinesia. Patients often opposed psychiatry and refused or stopped taking the drugs when not subject to psychiatric control.
Governments have been heavily involved in the regulation of drug development and drug sales. In the U.S., the Elixir Sulfanilamide disaster led to the establishment of the Food and Drug Administration, and the 1938 Federal Food, Drug, and Cosmetic Act required manufacturers to file new drugs with the FDA. The 1951 Humphrey-Durham Amendment required certain drugs to be sold by prescription. In 1962, a subsequent amendment required new drugs to be tested for efficacy and safety in clinical trials.[27]:24–26
Until the 1970s, drug prices were not a major concern for doctors and patients. As more drugs became prescribed for chronic illnesses, however, costs became burdensome, and by the 1970s nearly every U.S. state required or encouraged the substitution of generic drugs for higher-priced brand names. This also led to the 2006 U.S. law, Medicare Part D, which offers Medicare coverage for drugs.[27]:28–29
As of 2008, the United States is the leader in medical research, including pharmaceutical development. U.S. drug prices are among the highest in the world, and drug innovation is correspondingly high. In 2000, U.S.-based firms developed 29 of the 75 top-selling drugs; firms from the second-largest market, Japan, developed eight, and the United Kingdom contributed 10. France, which imposes price controls, developed three. Throughout the 1990s, outcomes were similar.[27]:30–31

Controversies

Controversies concerning pharmaceutical drugs include patient access to drugs under development and not yet approved, pricing, and environmental issues.

Access to unapproved drugs

Governments worldwide have created provisions for granting access to drugs prior to approval for patients who have exhausted all alternative treatment options and do not match clinical trial entry criteria. Often grouped under the labels of compassionate use, expanded access, or named patient supply, these programs are governed by rules which vary by country defining access criteria, data collection, promotion, and control of drug distribution.[40]

Within the United States, pre-approval demand is generally met through treatment IND (investigational new drug) applications (INDs), or single-patient INDs. These mechanisms, which fall under the label of expanded access programs, provide access to drugs for groups of patients or individuals residing in the US. Outside the US, Named Patient Programs provide controlled, pre-approval access to drugs in response to requests by physicians on behalf of specific, or "named", patients before those medicines are licensed in the patient's home country. Through these programs, patients are able to access drugs in late-stage clinical trials or approved in other countries for a genuine, unmet medical need, before those drugs have been licensed in the patient's home country.[*citation needed*]

Patients who have not been able to get access to drugs in development have organized and advocated for greater access. In the United States, ACT UP formed in the 1980s, and eventually formed its Treatment Action Group in part to pressure the US government to put more resources into discovering treatments for AIDS and then to speed release of drugs that were under development.[41]

The Abigail Alliance was established in November 2001 by Frank Burroughs in memory of his daughter, Abigail.[42] The Alliance seeks broader availability of investigational drugs on behalf of terminally ill patients.

In 2013, BioMarin Pharmaceutical was at the center of a high-profile debate regarding expanded access of cancer patients to experimental drugs.[43][44]

Access to medicines and drug pricing

Essential medicines, as defined by the World Health Organization (WHO), are "those drugs that satisfy the health care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dosage forms, at a price the community can afford."[45] Recent studies have found that most of the medicines on the WHO essential medicines list, outside of the field of HIV drugs, are not patented in the developing world, and that lack of widespread access to these medicines arise from issues fundamental to economic development – lack of infrastructure and poverty.[46] Médecins Sans Frontières also runs a Campaign for Access to Essential Medicines campaign, which includes advocacy for greater resources to be devoted to currently untreatable diseases that primarily occur in the developing world. The Access to Medicine Index tracks how well pharmaceutical companies make their products available in the developing world.[*citation needed*]

World Trade Organization negotiations in the 1990s, including the TRIPS Agreement and the Doha Declaration, have centered on issues at the intersection of international trade in pharmaceuticals and intellectual property rights, with developed world nations seeking strong intellectual property rights to protect investments made to develop new drugs, and developing world nations seeking to promote their generic pharmaceuticals industries and their ability to make medicine available to their people via compulsory licenses.

Some have raised ethical objections specifically with respect to pharmaceutical patents and the high prices for drugs that they enable their proprietors to charge, which poor people around the world, cannot afford.[47][48] Critics also question the rationale that exclusive patent rights and the resulting high prices are required for pharmaceutical companies to recoup the large investments needed for research and development.[47] One study concluded that marketing expenditures for new drugs often doubled the amount that was allocated for research and development.[49] Other critics claim that patent settlements would be costly for consumers, the health care system, and state and federal governments because it would result in delaying access to lower cost generic medicines.[50]

Novartis fought a protracted battle with the government of India over the patenting of its drug, Gleevec, in India, which ended up in a Supreme Court in a case known as Novartis v. Union of India & Others. The Supreme Court ruled narrowly against Novartis, but opponents of patenting drugs claimed it as a major victory.[51]

Environmental issues

Pharmaceutical medications are commonly described as "ubiquitous" in nearly every type of environmental medium (i.e. lakes, rivers, streams, estuaries, seawater, and soil) worldwide.[52][53][54][55] Their chemical components are typically present at relatively low concentrations in the ng/L to µg/L ranges.[56][54] The primary avenue for medications reaching the environment are through the effluent of wastewater treatment plants,

both from industrial plants during production, and from municipal plants after consumption.[57] Agricultural pollution is another significant source derived from the prevalence of antibiotic use in livestock.[56]
Scientists generally divide environmental impacts of a chemical into three primary categories: persistence, bioaccumulation, and toxicity.[53] Since medications are inherently bio-active, most are naturally degradable in the environment, however they are classified as "pseudopersistent" because they are constantly being replenished from their sources.[52] These Environmentally Persistent Pharmaceutical Pollutants (EPPPs) rarely reach toxic concentrations in the environment, however they have been known to bioaccumulate in some species.[58] Their effects have been observed to compound gradually across food webs, rather than becoming acute, leading to their classification by the US Geological Survey as "Ecological Disrupting Compounds."[52]

Yorum

Tedavi Yaklaşımları: Hekimler tedavi garantisi vermezler. Tedavi ediyor olsa bile, kesin konuşmamalıdırlar. Bu açıdan tedavi bir süreçtir. Bilimsel olarak hastaya özgü, sorunlarının analizi ve sentezi ile bulunan yaklaşım olup, izlem zorunludur.

İlaçlar gerçek boyutta zehirdirler, onları Eczacılık Bilimi doz ve etkinliğin hastaya uyarlanması ile ilaç yapmaktadır.

Burada Eczacılık Konusu olarak ele alınmadığı için makale yüzeysel olarak irdelenecektir.

Tedavi anlam olarak: Hastalıkları tedavi veya tam şifa oluşturması için kullanılan maddeler ise de sadece rahatlama, ağrının kesilmesi bile bu kapsamda ele alınmalıdır.

Toplumda kullanım oranı: 2005-2007 yılları arasında 71 yaşındaki hastalarda oran: %84 bir reçete kullanmış, %44 hastaneye başvurmuş, %52 beslenme öğüdü almış, bu zaman içinde (2010-2011) %84 olmuş %88 ilaç kullanımı, başvuru oranı %44, 38 olmuş, buna karşın diyet önerisi alınması %52'den %64'e yükselmiştir.

İlaçların tipleri, kullanıldığı yerler gibi eczacılık konuları makalede verilecek ama yorumlanmayacaktır.

Eczacılıkta gelişim: Bilim geliştikçe çeşitli boyutlar gündeme gelmektedir. Bireye özgü tedavi yaklaşımlarında, immün sistemi uyarıcı ve buna göre tedavi yaklaşımları, özellikle kanserde uygulanmaktadır.

İlaçlandırma yaklaşımları: İlk ürün piyasaya çıkarken, 12bin maddenin ancak bir tanesi uygulama yeri bulduğu belirtilince, araştırma boyutu yıllar almaktadır. En erken 3 yılda bir ürün piyasaya sürülebilmektedir. Bu açıdan geliştirme projeleri Devlet desteğinde olması beklenir Ülkemizde Covid aşısı bir Üniversitede Kamu desteği ile oluşturulmuştur.

Onaylanmamış maddeler: Plasebo hekimlikte gönüllü çalışmalarında kullanılan, etkisi olmayan maddeler olarak tanımlanır.

Wikipedia olarak tanımlanan: **Plasebo etkisi,** farmakolojik olarak etkisiz bir ilacın telkine dayalı bir etki ortaya çıkarma halidir. Latince kökenli bir kelime olup *hoşnut etmek* anlamına gelir.[1] İlaç, vücuda ağız, burun veya enjeksiyon yolu ile verilebilir. Bunun yanında cerrahi girişimlerle bile placebo etkisi sağlanabilir.[2]

Aslında plasebonun fiziksel anlamda tedaviye yönelik bir gücü yoktur. Sahip olduğu tedavi gücünü tamamen hastanın verilen ilacın işe yarayacak ilaç olduğunu düşünmesinden alır. Plasebo, tıbbın bilimsel olarak açıklayamadığı bir şekilde insanların istemeleri halinde kendi kendilerini iyileştirme gücüne yöneliktir. Tıbbi olarak kurtulma ihtimali zayıf görülen birçok hasta, ölmekten bu güç sayesinde kurtulmuş, tıbbın çözüm bulamadığı kanserin tedavisinde

çoğunlukla yüksek moral ve iyileşme azmi etkili olmuştur. Plasebo, gayri-resmî yazışma dilinde ve halk arasında faydalı tıbbi içeriğinin bulunmadığını ifade etmek için bazen "şeker hapı" olarak da adlandırılır.

İlaç bireye ve ortama göre etkileşim gösterir: Tedavi bir terzilik boyutu gibi, inana, bireye göre uyarlama yapılmasıdır.

NEONATOLOJİ AÇISINDAN: Tek bir uygulama değil, fizyolojisi, metabolizması farklı olduğu için, bebeğe bakarak yapılabilir. Akciğerde surfaktan yapımı olmayınca, bunun bir seferde verilmesi değil, devamlı fizyolojisinin sağlanması ile takviye edilmelidir.

Kısaca bebeğe bak ona göre organ sistemlerini irdele ve tedavi yaklaşımlarını yap denilmelidir.

Sağlık ve Bebek Ölümleri

Sağlık yaklaşımlarında en belirgin başarı ölümlerin, mortalitenin azaltılmasıdır. Daha sonra morbidite, hastalanmanın azaltılmasıdır. Bu açıdan öncelikle ölüm boyutuna bakılmalıdır.

Infant mortality, Wikipedia[18]

Infant mortality is the death of an infant before the infant's first birthday.[1] The occurrence of infant mortality in a population can be described by the **infant mortality rate** (**IMR**), which is the number of deaths of infants under one year of age per 1,000 live births.[1] Similarly, the *child mortality rate*, also known as the *under-five mortality rate,* compares the death rate of children up to the age of five.[2]

In 2013, the leading cause of infant mortality in the United States was birth defects.[3] Other leading causes of infant mortality include birth asphyxia, pneumonia, neonatal infection, diarrhea, malaria, measles, malnutrition,[4] congenital malformations, term birth complications such as abnormal presentation of the fetus, umbilical cord prolapse, or prolonged labor.[5] One of the most common preventable causes of infant mortality is smoking during pregnancy.[6] Lack of prenatal care, alcohol consumption during pregnancy, and drug use also cause complications that may result in infant mortality.[7][*failed verification*] Many situational factors contribute to the infant mortality rate, such as the pregnant woman's level of education, environmental conditions, political infrastructure, and level of medical support.[8] Improving sanitation, access to clean drinking water, immunization against infectious diseases, and other public health measures can help reduce rates of infant mortality.

In 1990, 8.8 million infants younger than one-year-old died globally[9] out of 12.6 million child deaths under the age of five.[10] More than 60% of the deaths of children under-five are seen as avoidable with low-cost measures such as continuous breastfeeding, vaccinations, and improved nutrition.[11] The global under-five mortality rate in 1950 was 22.5%, which dropped to 4.5% in 2015.[10] Over the same period, the infant mortality rate declined from 65 deaths per 1,000 live births to 29 deaths per 1,000.[12] Globally, 5.4 million children died before their fifth birthday in 2017;[13] by 2021 that number had dropped to 5 million children.[14]

The child mortality rate (not the infant mortality rate) was an indicator used to monitor progress towards the Fourth Goal of the Millennium Development Goals of the United Nations for the year 2015. A reduction in child mortality was established as a target in the Sustainable Development Goals—Goal Number 3: Ensure healthy lives and promote well-being for all at all ages.[15] As of January 2022, an analysis of 200 countries found 133 already meeting the SDG target, with 13 others trending towards meeting the target by 2030.[16] Throughout the world, the infant mortality rate (IMR) fluctuates drastically, and according to Biotechnology and Health Sciences, education and life expectancy in a country are the leading indicators of IMR.[17] This study was conducted across 135 countries over the course of 11 years, with the continent of Africa having the highest infant mortality rate of any region studied, with 68 deaths per 1,000 live births.[17]

Classification

Infant mortality rate (IMR) is the number of deaths per 1,000 live births of children under one year of age. The rate for a given region is the number of children dying under one year of age, divided by the number of live births during the year, multiplied by 1,000.[18]
Forms of infant mortality:

- Perinatal mortality is late fetal death (22 weeks gestation to birth) or death of a newborn up to one week postpartum.[18]
- Neonatal mortality is death occurring within 28 days postpartum. Neonatal death is often attributed to inadequate access to basic medical care, during pregnancy and after delivery. This accounts for 40–60% of infant mortality in developing countries.[19]
- Postneonatal mortality is the death of children aged 29 days to one year. The major contributors to postneonatal death are malnutrition, infectious disease, pregnancy complications, sudden infant death syndrome, and problems in the home environment.[1]

Causes

Causes of infant mortality, or direct causes of death, differ from contributions to the IMR, as contributing factors raise the risk of death, but do not directly cause death.[20] Environmental and social barriers that prevent access to basic medical resources contribute to an increased infant mortality rate, 86% of infant deaths are caused by infections, premature births, complications during delivery, perinatal asphyxia, and birth injuries. Many of these common causes are preventable with low-cost measures.[18] While 99% of infant deaths occur in developing countries, the greatest percentage reduction in infant mortality occurs in countries that already have low rates of infant mortality.[18][21] In the United States, a primary source of infant mortality risk is infant birth weight, with lower birth weights increasing the risk;[22] the causes of low birth weight include socioeconomic, psychological, behavioral, and environmental factors.[23]

Main causes

There are three main leading causes of infant mortality: conditions related to preterm birth, congenital anomalies, and SIDS (sudden infant death syndrome).[24] In North Carolina between 1980 and 1984, 37.5% of infant deaths were due to prematurity, congenital anomalies accounted for 17.4% and SIDS accounted for 12.9%.[24]

Premature birth

Premature, or preterm birth (PTB), is defined as birth before a gestational age of 37 weeks, as opposed to full term birth at 40 weeks. This can be further sub-divided in various ways, one being: "mild preterm (32–36 weeks), very preterm (28–31 weeks) and extremely preterm (<28 weeks)".[25] A lower gestational age increases the risk of infant mortality.[26]
Between 1990 and 2010 prematurity was the second leading cause of worldwide mortality for neonates and children under the age of five.[27] The overall PTB mortality rate in 2010 was 11.1% (15 million deaths) worldwide and was highest in low to middle-income countries in sub-Saharan Africa and south Asia (60% of all PTBs), compared with high-income countries in Europe or the United States.[27][*failed verification*] Low-income countries also have limited resources to care for the needs of preterm infants, which increases the risk of infant mortality. The survival rate in these countries for infants born before 28 weeks of gestation is 10%, compared with a 90% survival rate in high-income countries.[28] In the United States, the period from 1980 to 2000 saw a decrease in the total number of infant mortality cases, despite a significant increase in premature births.[29]
Based on distinct clinical presentations, there are three main subgroups of preterm births: those that occur due to spontaneous premature labor, those that occur due to spontaneous membrane (amniotic sac) rupture, and those that are medically induced.[30] Both spontaneous factors are viewed to be a result of similar causes; hence, two main classifications remain: spontaneous and medically induced causes.[31] The risk of spontaneous PTB increases with "extremes of maternal age (both young and old), short inter-pregnancy intervals, multiple gestations, assisted reproductive technology, prior PTB, family history, substance abuse, cigarette use, low maternal socioeconomic status, late or no prenatal care, low maternal prepregnancy weight, bacterial vaginosis, periodontal disease, and poor pregnancy weight gain."[32] Medically induced preterm birth is often conducted when continuing pregnancy poses significant risks to the pregnant parent or fetus; the most common causes include preeclampsia, diabetes, maternal medical conditions, fetal distress, or developmental problems.[25] Despite these risk factors, the underlying causes of premature infant death are often unknown, and approximately 65% of all cases are not associated with any known risk factor.[26]

Infant mortality caused by premature birth is mainly attributed to developmental immaturity, which impacts multiple organ systems in the infant's body.[33] The main body systems affected include the respiratory system, which may result in pulmonary hypoplasia, respiratory distress syndrome, bronchopulmonary dysplasia (a chronic lung disease), and apnea.[33] Other body systems that fully develop at a later gestational age include the gastrointestinal system, the skin, the immune system, the cardiovascular system, and the hematologic system.[33] Poor development of these systems increases the risk of infant mortality.[*citation needed*]

Understanding the biological causes and predictors of PTB is important for identifying and preventing premature birth and infant mortality. While the exact mechanisms responsible for inducing premature birth are often unknown, many of the underlying risk factors are associated with inflammation. Approximately "80% of preterm births that occur at <1,000 g or at <28 to 30 weeks of gestation" have been associated with inflammation.[*citation needed*] Biomarkers of inflammation, including C-reactive protein, ferritin, various interleukins, chemokines, cytokines, defensins, and bacteria, have been shown to be associated with increased risks of infection or inflammation-related preterm birth. Biological fluids have been utilized to analyze these markers in hopes of understanding the pathology of preterm birth, but they are not always useful if not acquired at the appropriate gestational time-frame. For example, biomarkers such as fibronectin are accurate predictors of premature birth at over 24 weeks of gestation but have poor predictive values before then.[34] Additionally, understanding the risks associated with different gestational ages is a helpful determiner of Gestational age-specific mortality.[29]

Sudden infant death syndrome (SIDS)

Sudden infant death syndrome (SIDS) is defined as the sudden death of an infant less than one year of age with no cause detected after a thorough investigation. SIDS is more common in Western countries.[35] The United States Centers for Disease Control and Prevention report SIDS to be the leading cause of death in infants aged one month to one year of life.[36] Even though researchers are not sure what causes SIDS, they have found that putting babies to sleep on their backs, instead of their stomachs, lowers the risk. Campaigns like Back to Sleep have used this research to lower the SIDS death rate by 50%.[37] Though the exact cause is unknown, the "triple-risk model" presents three factors that together may contribute to SIDS: smoking while pregnant, the age of the infant, and stress from conditions such as prone sleeping, co-sleeping, overheating, and covering of the face or head.[35] In the early 1990s, it was argued that immunizations could contribute to an increased risk of SIDS; however, more recent support the idea that vaccinations reduce the risk of SIDS.[38]

In the United States, approximately 3,500 infant deaths are sleep-related, a category that includes SIDS.[39] To reduce sleep-related infant deaths, the American Academy of Pediatrics recommends providing infants with safe-sleeping environments, breastfeeding, and immunizing according to the recommended immunization schedule. They recommend against the use of a pacifier and recommend avoiding exposure to smoke, alcohol, and illicit drugs during and after pregnancy.[39]

Congenital malformations

Congenital malformations are present at birth and include conditions such as cleft lip and palate, Down Syndrome, and heart defects. Some congenital malformations may be more likely when the mother consumes alcohol, but they can also be caused by genetics or unknown factors.[40] Congenital malformations have had a significant impact on infant mortality, but alnutrition and infectious diseases remain the main causes of death in less developed countries. For example, in the Caribbean and Latin America in the 1980s, congenital malformations only accounted for 5% of infant deaths, while malnutrition and infectious diseases accounted for 7% to 27% of infant deaths.[41] In more developed countries, such as the United States, there was a rise in infant deaths due to congenital malformations, mostly heart and central nervous system problems. In the 20th century, there was a decrease in the number of infant deaths from heart conditions, from 1979 to 1997, there was a 39% decline.[42]

Medicine and biology

Causes of infant mortality and deaths that are related to medical conditions include: low birth weight, sudden infant death syndrome, malnutrition, congenital malformations, infectious diseases, and low income for health care, including neglected tropical diseases.

The American Academy of Pediatrics recommends that infants need multiple doses of vaccines such as diphtheria–tetanus–acellular pertussis vaccine, *Haemophilus influenzae* type b (Hib) vaccine, hepatitis B (HepB) vaccine, inactivated polio vaccine (IPV), and pneumococcal vaccine (PCV). Research conducted by

the Institute of Medicine's Immunization Safety Review Committee concluded that there is no relationship between these vaccines and the risk of SIDS in infants.[43]:77–78

Low birth weight

Low birth weight makes up 60–80% of the infant mortality rate in developing countries. *The New England Journal of Medicine* stated that "The lowest mortality rates occur among infants weighing 3,000 to 3,500 g (6.6 to 7.7 lb). For infants born weighing 2,500 g (5.5 lb) or less, the mortality rate rapidly increases with decreasing weight, and most of the infants weighing 1,000 g (2.2 lb) or less die. As compared with normal-birth-weight infants, those with low weight at birth are almost 40 times more likely to die in the neonatal period; for infants with very low weight at birth the relative risk of neonatal death is almost 200 times greater."[*This quote needs a citation*] Infant mortality due to low birth weight is usually a direct cause stemming from other medical complications such as preterm birth, poor maternal nutritional status, a lack of prenatal care, maternal sickness during pregnancy, and unhygienic home environments.[18] Birth weight and the length of gestation are the two most important predictors of an infant's chances of survival and their overall health.[44]

According to the *New England Journal of Medicine*, "in the past two decades, the infant mortality rate (deaths under one year of age per thousand live births) in the United States has declined sharply."[*This quote needs a citation*] The rate of low birth weights among African Americans remains twice as high as the rate for white people. Low birth weight, the leading cause of infant deaths, is preventable by effective programs to help prevent low birth weight are a combination of health care, education, the environment, mental modification,[*clarify*] and public policy.[45] Preterm birth is the leading cause of newborn deaths worldwide.[46] Even though America has a higher survival rate for premature infants, the percentage of Americans who deliver prematurely is comparable to those in developing countries. Reasons for this include teenage pregnancy, an increase in pregnancy after the age of 35, an increase in the use of in vitro fertilization (which increases the risk of multiple births), obesity, and diabetes. Also, pregnant people who do not have access to health care are less likely to visit a doctor, therefore increasing their risk of delivering prematurely.[47]

Malnutrition

Malnutrition or undernutrition is defined as inadequate intake of nourishment, such as proteins and vitamins, which adversely affects the growth, energy, and development of people all over the world.[48] It is especially prevalent during pregnancy and in infants and children under 5 who live in developing countries within the poorer regions of Africa, Asia, and Latin America.[49] Children are especially vulnerable as they have yet to fully develop a strong immune system and are dependent on their parents to provide the necessary food and nutritional intake. It is estimated that about 3.5 million children die each year as a result of childhood or maternal malnutrition, with stunted growth, low body weight, and low birth weight accounting for about 2.2 million associated deaths.[50] Socioeconomic and environmental factors contribute to malnutrition, as do gender, location, and cultural practices surrounding breastfeeding.[51] It is difficult to assess the most pressing factor as they can intertwine and vary among regions.

Children suffering from malnutrition can become underweight, and experience stunting or wasting. In Africa, the number of stunted children has risen, while Asia has the most children under 5 suffering from wasting.[52] Inadequate nutrients adversely affect physical and cognitive development, increasing susceptibility to severe health problems. Micronutrient deficiency has been linked to anemia, fatigue, blindness, goiter, poor brain development, and death.[53] Malnutrition also decreases the immune system's ability to fight infections, resulting in higher rates of death from diseases such as malaria, respiratory disease, and diarrhea.[54]

Folic acid during pregnancy is one way to combat iron deficiency. A few public health measures used to lower levels of iron deficiency anemia include added iodine to salt or drinking water and including vitamin A and multivitamin supplements in the diet.[18] A deficiency of this vitamin causes certain types of anemia (low red blood cell count).[55]

Infectious diseases

Babies born in low- to middle-income countries in sub-Saharan Africa and southern Asia are at the highest risk of neonatal death. Bacterial infections of the bloodstream, lungs, and the brain's covering (meningitis) are responsible for 25% of neonatal deaths worldwide. Newborns can acquire infections during birth from bacteria present in the birth canal, the person may not be aware of the infection, or they may have an untreated pelvic inflammatory disease or a sexually transmitted disease. These bacteria can also move up the vaginal canal into the amniotic sac surrounding the baby causing in utero transmission. Maternal blood-borne infection is another

route of bacterial infection. Neonatal infection is more likely with the premature rupture of the membranes (PROM) of the amniotic sac.[56]

Seven out of ten childhood deaths are due to infectious diseases like acute respiratory infection, diarrhea, measles, and malaria. Acute respiratory infections such as pneumonia, bronchitis, and bronchiolitis account for 30% of childhood deaths; 95% of pneumonia cases occur in the developing world. Diarrhea is the second-largest cause of childhood mortality in the world, while malaria causes 11% of childhood deaths. Measles is the fifth-largest cause of childhood mortality.[18][57]

Environmental

The infant mortality rate is one measure of a nation's health and social conditions. Its causes are a composite of a number rates that each have their own separate relationships with each other and with various other social factors. As such, IMR can often be seen as an indicator to measure the level of socioeconomic disparity within a country.[44][58]

Organic water pollution is a better indicator of infant mortality than health expenditures per capita. Water contaminated by animal waste houses various pathogens including a host of parasitic and microbial infections.[59] Areas of low socioeconomic status are more prone to inadequate plumbing infrastructure and poorly maintained facilities.[18] Climate and geography often play a role in sanitation conditions. For example, the inaccessibility of clean water exacerbates poor sanitation conditions.[59]

The burning of inefficient fuels doubles the rate of acute respiratory tract infections in children under 5 years old.[18] People who live in areas where particulate matter air pollution is higher tend to have more health problems regardless of age. The short and long-term effects of air pollution are associated with an increased mortality rate, including infant mortality. Air pollution is consistently associated with postnatal mortality due to respiratory effects and sudden infant death syndrome (SIDS). Specifically, air pollution is highly associated with SIDS in the United States during the post-neonatal stage.[60] High infant mortality is exacerbated because newborns are a vulnerable subgroup that is affected by air pollution.[61] Newborns who were born into these environments are no exception, and pregnant women exposed to greater air pollution on a daily basis should be closely watched by their doctors, including after the baby is born. Babies who live in areas with less air pollution have a greater chance of living until their first birthday, meaning babies who live in environments with more air pollution are at greater risk for infant mortality. Areas that have higher air pollution also have a greater chance of having a higher population density, higher crime rates, and lower income levels, all of which can lead to higher infant mortality rates.[62]

A key pollutant in infant mortality rates is carbon monoxide. Carbon monoxide is a colorless, odorless gas that can kill, and is especially dangerous to infants because of their immature respiratory systems.[63] Another major pollutant that can have detrimental effects on a fetus is second-hand smoke.

[I]n 2006, more than 42,000 Americans died of secondhand smoke-attributable diseases, including more than 41,000 adults and nearly 900 infants. Fully 36% of the infants who died of low birth weight caused by exposure to maternal smoking in utero were black, as were 28% of those dying of respiratory distress syndrome, 25% dying of other respiratory conditions, and 24% dying of sudden infant death syndrome.

— *American Journal of Public Health*

Compared with nonsmoking women having their first birth, women who smoked less than one pack of cigarettes per day had a 25% greater risk of mortality, and those who smoked one or more packs per day had a 56% greater risk. Among women having their second or higher birth, smokers experienced 30% greater mortality than nonsmokers.

— *The American Journal of Epidemiology*

Modern research in the United States into racial disparities in infant mortality suggests a link between institutionalized racism and high rates of African American infant mortality. In synthesis[*improper synthesis?*] of this research, it has been observed that "African American infant mortality remains elevated due to the social arrangements that exist between groups and the lifelong experiences responding to the resultant power dynamics of these arrangements."[23]

It is important to note that infant mortality rates do not decline among African Americans if their socio-economic status improves. Parker Dominguez at the University of Southern California[*citation needed*] has made some headway in determining the reasons behind this, claiming black women in the US are more prone to psychological stress

than women of other races. Stress is a leading factor in the start of labor, and therefore, high levels of stress during pregnancy could lead to premature births that have the potential to be fatal for the infant.[64]

Early childhood trauma

Early childhood trauma includes physical, sexual, and psychological abuse of a child from birth to five years old. Trauma in early childhood has an extreme impact over the course of a lifetime and is a significant contributor to infant mortality. Developing organs are fragile, when an infant is shaken, beaten, strangled, or raped, the impact is exponentially more destructive than when the same abuse occurs to a fully developed body.[*fact or opinion?*] Studies estimate that 1–2 per 100,000 U.S. children are fatally injured annually, and it is reasonable to assume that these statistics underrepresent actual mortality.[65][66] Almost three-quarters (70.6%) of child fatalities in FFY 2018 involved children younger than 3 years, and children younger than 1 year accounted for half (49.4%) of all fatalities.[65] In particular, correctly identifying deaths due to neglect is problematic, and children with sudden, unexpected deaths or deaths from apparently unintentional causes often have preventable risk factors that are substantially similar to those in families with maltreatment.[*citation needed*]

There is a direct relationship between the age at which maltreatment or injury occurs and the risk of death. The younger an infant is, the more dangerous the maltreatment.[67][*failed verification*]

Family configuration,[68][69] child gender, social isolation, lack of support, maternal youth, marital status, poverty, parental adverse childhood experiences, and parenting practices[70] are all thought to contribute to increased risk.[65]

Socio-economic factors

Social class is a major factor in infant mortality, both historically and today. Between 1912 and 1915, the Children's Bureau in the United States examined data across eight cities and nearly 23,000 live births. They discovered that lower incomes tended to correlate with higher infant mortality. In cases where the father had no income, the rate of infant mortality was 357% higher than that for the highest income earners ($1,250+).[71]:5 Differences between races were also apparent. African-American mothers experience infant mortality at a rate 44% higher than average;[71] however, research indicates that socio-economic factors do not totally account for the racial disparities in infant mortality.[23]

While infant mortality is normally negatively correlated with GDP, there may be some beneficial short-term effects from a recession. A 2009 study in *The Economist* showed that economic slowdowns reduce air pollution, which results in a lower infant mortality rate. In the late 1970s and early 1980s, the recession's impact on air quality was estimated to have saved around 1,300 US babies.[72] It is only during deep recessions that infant mortality increases. According to Norbert Schady and Marc-François Smitz, recessions when per capita GDP drops by 15% or more increase IMR.[73]

Social class dictates which medical services are available to an individual. Disparities due to socioeconomic factors have been highlighted by advances in medical technology. Developed countries, most notably the United States, have seen a divergence in IMR between those living in poverty who cannot afford medically advanced resources, and those who can.[58]

Developing nations with democratic governments tend to be more responsive to public opinion, social movements, and special interest groups on issues like infant mortality. In contrast, non-democratic governments are more interested in corporate issues than in health issues. Democratic status affects the dependency a nation has on its economic state via exports, investments from multinational corporations, and international lending institutions.[74]

Levels of socioeconomic development and global integration are inversely related to a nation's infant mortality rate, meaning that as they increase, IMR decreases.[18][75] A nation's internal impact is highly influenced by its position in the global economy, which has adverse effects on the survival of children in developing countries.[59] Countries can experience disproportionate effects from trade and stratification within the global system,[76] which contributes to the global division of labor, and distorts the domestic economies of developing nations. The dependency of developing nations can reduce the rate of economic growth, increase income inequality inter- and intra-nationally, and adversely affect the wellbeing of a nation's population. Collective cooperation between countries plays a role in development policies in the poorer countries of the world.[74][*further explanation needed*]

These economic factors present challenges to governments' public health policies.[59] If the nation's ability to raise its own revenues is compromised, governments will lose funding for their health service programs, including those that aim to decrease infant mortality rates.[74] Less developed countries face higher levels of vulnerability to the possible negative effects of globalization and trade in relation to more developed countries.[59]

Even with a strong economy and economic growth (measured by a country's gross national product), the advances of medical technologies may not be felt by everyone, increasing social disparities.[58] In England, from 2014 to 2017, a rise in infant mortality was disproportionately experienced by the poorest regions, where the previously declining trend was reversed and an additional 24 infant deaths per 100,000 live births occurred annually.[77]

War

Infant mortality rates correlate with war, political unrest, and government corruption.[18] In most cases, war-affected areas will experience a significant increase in infant mortality rates. Having a war take place when planning pregnancy is not only stressful on the mother and fetus but also has several detrimental effects.[*citation needed*]

Many other significant factors influence infant mortality rates in war-torn areas. Health care systems in developing countries in the midst of war often collapse, and obtaining basic medical supplies and care becomes increasingly difficult. During the Yugoslav Wars in the 1990s, Bosnia experienced a 60% decrease in child immunizations. Preventable diseases can quickly become epidemics during war.[78]

Many developing countries rely on foreign aid for basic nutrition, and transport of aid becomes significantly more difficult in times of war. In most situations, the average weight of a population will drop substantially.[79] Expectant mothers are affected even more by a lack of access to food and water. During the Yugoslav Wars in Bosnia, the number of premature babies born increased and the average birth weight decreased.[78]

There have been several instances in recent years of systematic rape as a weapon of war. People who become pregnant as a result of war rape face even more significant challenges in bearing a healthy child. Studies suggest that people who experience sexual violence before or during pregnancy are more likely to experience infant death.[80][81][82] Causes of infant mortality after abuse during pregnancy range from physical side effects of the initial trauma to psychological effects that lead to poor adjustment to society.[83] Many people who became pregnant by rape in Bosnia were isolated from their hometowns, making life after childbirth exponentially more difficult.[*citation needed*]

Culture

High rates of infant mortality occur in developing countries where financial and material resources are scarce, and where there is a high tolerance for infant deaths. There are a number of developing countries where certain cultural situations, such as favoring male babies over female babies, are the norm.[18] In developing countries such as Brazil, infant mortality rates are commonly not recorded due to not registering for death certificates.[84] Another cultural reason for infant mortality, such as what is happening in Ghana, is that "besides the obvious, like rutted roads, there are prejudices against wives or newborns leaving the house."[85] This makes it even more difficult for pregnant women and newborns to get the needed treatment that is available to them. In the United States cultural influences and lifestyle habits can account for some infant deaths. Examples include teenage pregnancy, obesity, diabetes, and smoking. All are possible causes of premature births, which constitute the second-highest cause of infant mortality.[47] According to the Journal of the American Medical Association, "the post neonatal mortality risk (28 to 364 days) was highest among continental Puerto Ricans" compared to non-Hispanic babies. Ethnic differences are accompanied by a higher prevalence of behavioral risk factors and sociodemographic challenges that each ethnic group faces.[44]

Male sex favoritism

Historically, males have had higher infant mortality rates than females, with the difference being dependent on environmental, social, and economic conditions. More specifically, males are biologically more vulnerable to infections and conditions associated with prematurity and development. Before 1970, the reasons for male infant mortality were infections and chronic degenerative diseases. However, since 1970, male sex favoritism in certain cultures has led to a decrease in the infant mortality gap between males and females. Also, medical

advances have resulted in a greater effect on the survival rate of male infants than female infants, due to the initial high infant mortality rate of males.[86]

Genetic components result in newborn females being at a biological advantage when it comes to surviving their first birthday, versus newborn males, who have lower chances of surviving infancy. As infant mortality rates decreased globally, the gender ratios changed from males being at a biological disadvantage to females facing a societal disadvantage.[86] Some developing nations have social and cultural patterns that favor boys over girls for their future earning potential. A country's ethnic composition, homogeneous or heterogeneous, can explain social attitudes and practices. Heterogeneous levels are a strong predictor of infant mortality.[75][*verification needed*]

Birth spacing

Birth spacing is the time between births. Births spaced at least three years apart are associated with the lowest rate of mortality. The longer the interval between births, the lower the risk of having complications at birth, or of infant, childhood, or maternal mortality.[19][87] Conception less than six months after a birth, abortion, or miscarriage is associated with higher rates of preterm births and low birth weight, and also increases the chances of chronic and general undernutrition. In 55 developing countries 57% of reported pregnancies had birth spaces of less than three years, and 26% of less than two years. While only 20% of new parents report wanting another birth within two years, only 40% are taking steps like family planning to achieve this.[19]

Unplanned pregnancies and birth intervals of less than twenty-four months are known to correlate with low birth weights and delivery complications. Also, mothers who are already small in stature tend to deliver smaller than average babies, perpetuating a cycle of being underweight.[18][19][87]

Prevention and outcomes

To reduce infant mortality rates across the world, health practitioners, governments, and non-governmental organizations have worked to create institutions, programs, and policies to generate better health outcomes. Current efforts focus on the development of human resources, strengthening health information systems, health service delivery, etc. Improvements in such areas aim to increase regional health systems and aid efforts to reduce mortality rates.

Policy

Reductions in infant mortality are possible at any stage of a country's development.[21] Rate reductions are evidence that a country is advancing in human knowledge, social institutions, and physical capital. Governments can reduce mortality rates by addressing the combined need for education (such as universal primary education), nutrition, and access to basic maternal and infant health services. Focused policies have the potential to aid those most at risk for infant and childhood mortality, including rural, poor, and migrant populations.[88]

Reducing the chances of babies being born at low birth weights and contracting pneumonia can be accomplished by improving air quality.[*citation needed*] Improving hygiene can prevent infant mortality. Home-based technology to chlorinate, filter, and use solar disinfection for organic water pollution could reduce cases of diarrhea in children by up to 48%.[18][57][59] Improvements in food supplies and sanitation have been shown to work for the most vulnerable populations in the US, including among African Americans.[58]

Promoting behavioral changes, such as hand washing with soap, can significantly reduce the rate of infant mortality from respiratory and diarrheal diseases.[89] According to UNICEF, hand washing with soap before eating and after using the toilet can save children's lives by reducing deaths from diarrhea and acute respiratory infections.[90]

Focusing on preventing preterm and low birth weight deliveries throughout all populations can help eliminate cases of infant mortality and decrease health care disparities within communities. In the United States, these two goals have decreased regional infant mortality rates, but there has yet to be further progress on a national level.[44]

Increasing human resources such as physicians, nurses, and other health professionals will increase the number of skilled attendants and the number of people able to give out immunizations against diseases such as measles. Increasing the number of skilled professionals is correlated with lower maternal, infant, and childhood mortality. With the addition of one physician per 10,000 people, there is a potential for 7.08 fewer infant deaths per 10,000.[91]

In certain parts of the US, specific programs aim to reduce levels of infant mortality. One such program is the "Best Babies Zone" (BBZ), based at the University of California, Berkeley. The BBZ uses the life course

approach to address the structural causes of poor birth outcomes and toxic stress in three US neighborhoods. By employing community-generated solutions, the Best Babies Zone's ultimate goal is to achieve health equity in communities that are disproportionately impacted by infant mortality.[92]

Prenatal care and maternal health

Certain steps can help to reduce the chance of complications during pregnancy. Attending regular prenatal care check-ups will help improve the baby's chances of being delivered in safer conditions and surviving.[93] Additionally, taking supplementation, including folic acid, can help reduce the chances of birth defects, a leading cause of infant mortality.[7] Many countries have instituted mandatory folic acid supplementation in their food supply, which has significantly reduced the occurrence of a birth defect known as spina bifida in newborns.[94] Similarly, the fortification of salt with iodine, called salt iodization, has helped reduce negative birth outcomes associated with low iodine levels during pregnancy.[95]

Abstinence from alcohol can also decrease the chances of harm to the fetus as drinking any amount of alcohol during pregnancy may lead to fetal alcohol spectrum disorders (FASD) or other alcohol related birth defects.[96] Tobacco use during pregnancy has also been shown to significantly increase the risk of a preterm or low birth weight birth, both of which are leading causes of infant mortality.[97] Pregnant women should consult with their doctors to best manage any pre-existing health conditions to avoid complications to both their health as well as the fetus's. Obese people are at an increased risk of developing complications during pregnancy, including gestational diabetes or pre-eclampsia. Additionally, they are more likely to experience a pre-term birth or have a child with birth defects.[98][95]

Nutrition

Appropriate nutrition for newborns and infants can help keep them healthy, and can help avoid health complications during early childhood. The American Academy of Pediatrics recommends exclusively breastfeeding infants for the first 6 months of life, and continuing breastfeeding as other sources of food are introduced through the next 6 months of life (up to 1 year of age).[99] Infants under 6 months of age who are exclusively breastfed have a lower risk of mortality compared to infants who are breastfed part of the time or not at all.[100] For this reason, breast feeding is favored over formula feeding by healthcare professionals.

Vaccinations

The Centers for Disease Control and Prevention (CDC) defines infants as those 1 month of age to 1 year of age.[101] For these infants, the CDC recommends the following vaccinations: Hepatitis B (HepB), Rotavirus (RV), Haemophilus Influenzae type B (HIB), Pneumococcal Conjugate (PCV13), Inactivated Poliovirus (IPV < 18 yrs), Influenza, Varicella, Measles, Mumps, Rubella (MMR), and Diphtheria, tetanus, acellular pertussis (DTapP < 7yrs).[102] Each of these vaccinations are given at particular age ranges depending on the vaccination and are required to be done in a series of 1 to 3 doses over time depending on the vaccination.[102]

The efficacy of these vaccinations can be seen immediately following their introduction to society.[103] Following the advent of the Pneumococcal Conjugate vaccine (PCV13) in the United States in the year 2000, the World Health Organization (WHO) reports studies done in 2004 had shown a 57% decline in invasive[b] penicillin resistant strains of the disease and a 59% reduction in multi drug resistant strains.[103] This reduction was even greater for children under 2 years of age with studies finding an 81% reduction in those same strains.[103]

As mentioned in a previous section,[c] sudden infant death syndrome (SIDS) is the leading cause of infant mortality between 1 month and 1 year of age.[36] Immunizations, when given in accordance to proper guidelines, have shown to reduce the risk of SIDS by 50%.[39][104] For this reason, the American Academy of Pediatrics (AAP) and the Center for Disease Control (CDC) both recommend immunizations in accordance to their guidelines.[39][105]

Socio-economic factors

It has been well documented that increased education among mothers, communities, and local health workers results in better family planning, improvement in children's health, and lower rates of children's deaths. High-risk areas, such as Sub-Saharan Africa, have demonstrated that an increase in women's educational attainment leads to a reduction in infant mortality by about 35%.[106] Similarly, coordinated efforts to train community health workers in diagnosis, treatment, malnutrition prevention, reporting and referral services has reduced infant mortality in children under 5 by as much as 38%.[107] Public health campaigns centered around the First 1000 days of life have been successful in providing cost-effective supplemental nutrition programs, as well as assisting young mothers in sanitation, hygiene and breastfeeding.[108] Increased intake of nutrients and

better sanitation habits have a positive impact on health, especially for developing children. Educational attainment and public health campaigns provide the knowledge and means to practice better habits and lead to lower infant mortality rates.[*citation needed*]

A decrease in GDP results in increased rates of infant mortality.[109] A reduction in household income reduces the amount being spent on food and healthcare, affecting the quality of life, and reduces access to medical services that ensure full development and survival. Likewise, increased household income translates to more access to nutrients and healthcare, reducing the risks associated with malnutrition and infant mortality.[110] Moreover, increased aggregate household incomes will produce better health facilities, water and sewer infrastructures for the entire community.[110]

Differences in measurement

The infant mortality rate correlates very strongly with the likelihood of state failure, and is among the best predictors thereof.[111] IMR is therefore also a useful indicator of a country's level of health (development), and is a component of the physical quality of life index.

The method of calculating IMR often varies widely between countries, as it is based on how they define a live birth and how many premature infants are born in the country. Depending on a nation's live birth criterion, vital registration system, and reporting practices, reporting may be inconsistent or understated.[112] The reported IMR provides one statistic which reflects the standard of living in each nation. Changes in the infant mortality rate "reflect enduring social and technical capacities that become attached to a population".[21] The World Health Organization (WHO) defines a live birth as any infant born demonstrating independent signs of life, including breathing, heartbeat, umbilical cord pulsation or definite movement of voluntary muscles.[113] This definition is used in Austria,[114] and is also used in Germany, but with one slight modification: muscle movement is not considered to be a sign of life.[115] Many countries, including certain European states (e.g. France) and Japan, only count cases where an infant breathes at birth as a live birth, which makes their reported IMR numbers somewhat lower and increases their rates of perinatal mortality.[116] In other countries, the Czech Republic and Bulgaria, for instance, requirements for live birth are even higher.[117]

Although many countries have vital registration systems and specific reporting practices, there are often inaccuracies in the statistics, particularly in rural communities in developing countries. In those communities, some other alternative methods for calculating infant mortality rate are used, for example, popular death reporting and household survey. Studies have shown that when comparing three information sources—official registries, household surveys, and popular reporters—the popular death reporters are the most accurate; popular death reporters include midwives, gravediggers, coffin builders, priests, and others, essentially people who knew the most about the child's death. In developing nations, access to vital registries, and other government-run systems which record births and deaths, is difficult for poor families for several reasons. These struggles force families to take drastic measures, like having unofficial death ceremonies for their deceased infants. As a result, government statistics will inaccurately reflect a nation's infant mortality rate. Popular death reporters have first-hand information, and, provided this information can be collected and collated, can provide reliable, accurate death counts for a nation, as well as meaningful causes of deaths that can be measured and studied.[84]

UNICEF uses a statistical methodology to account for reporting differences among countries:

UNICEF compiles infant mortality country estimates derived from all sources and methods of estimation obtained either from standard reports, direct estimation from micro data sets, or from UNICEF's yearly exercise. In order to sort out differences between estimates produced from different sources, with different methods, UNICEF developed, in coordination with WHO, the WB and UNSD, an estimation methodology that minimizes the errors embodied in each estimate and harmonize trends along time. Since the estimates are not necessarily the exact values used as input for the model, they are often not recognized as the official IMR estimates used at the country level. However, as mentioned before, these estimates minimize errors and maximize the consistency of trends along time.[118]

Another challenge in comparing infant mortality rates is the practice of counting frail or premature infants who die before the normal due date as miscarriages, or counting those who die during or immediately after childbirth as stillbirths. Therefore, the quality of a country's documentation of perinatal mortality can greatly affect the accuracy of its infant mortality statistics. This point is reinforced by the demographer Ansley Coale, who finds the high ratios of reported stillbirths to infant deaths in Hong Kong and Japan in the first 24 hours after birth

dubious. As this pattern is consistent with the high male to female sex ratios recorded at birth in those countries it suggests two things: that many female infants who die in the first 24 hours are misreported as stillbirths rather than infant deaths; and that those countries do not follow WHO recommendations for the reporting of live births versus infant deaths.[119]

Another seemingly paradoxical finding is that when countries with poor medical services introduce new medical centers and services, instead of declining, the reported IMRs often increase for a time. This is mainly because improvement in access to medical care is often accompanied by improvement in the registration of births and deaths. Deaths that might have occurred in a remote or rural area, and not been reported to the government, might now be reported by the new medical personnel or facilities. Thus, even if the new health services reduce the actual IMR, the reported IMR may increase.[*citation needed*]

The country-to-country variation in child mortality rates is huge, and growing wider despite progress in decreasing the overall IMR. Among the world's roughly 200 nations, only Somalia showed no decrease in the under-5 mortality rate over the past two decades. In 2011 the global rate of under-5 deaths was 51 deaths per 1,000 births. Singapore had the lowest rate at 2.6, while Sierra Leone had the highest at 185 child deaths per 1,000 births. In the U.S., the rate was 8 under-5 deaths per 1,000 births.[120]

Infant mortality rate (IMR) is not only a statistic but also a reflection of socioeconomic development, as such it effectively represents the presence of medical services in a country. IMR is an effective resource for health departments making decisions on medical resource allocation, and also formulates global health strategies and helps evaluate their success. The use of IMR helps solve the inadequacies of other vital statistic systems for global health as most neglect infant mortality rates among the poor. There remains a certain amount of unrecorded infant death in rural area as they either do not have the concept of reporting early infant death, or they do not know about the importance of the IMR.[84]

Europe and US

Requirements for reporting a live birth, United States and selected European countries, 2004[121][122]

Reporting requirement	Country
All live births	Austria, Denmark, England and Wales, Finland, Germany, Hungary, Italy, Northern Ireland, Portugal, Scotland, Slovak Republic, Spain, Sweden, United States
Live births at 12 weeks of gestation or more	Norway
Live births at 500 grams birthweight or more, and less than 500 grams if the infant survives for 24 hours	Czech Republic
Live births at 22 weeks of gestation or more, or 500 grams birthweight or more	France
All live births for civil registration, births at 500 grams birthweight or more for the national perinatal register	Ireland
Live births at 22 weeks of gestation or more, 500 grams birthweight or more if gestational age is unknown	Netherlands
Live births at 500 or more grams birthweight	Poland

The inclusion or exclusion of high-risk neonates from the reported IMRs can cause problems in making comparisons. Many countries, including the United States, Sweden and Germany, count any birth exhibiting any sign of life as alive, no matter the month of gestation or neonatal size. All of the countries named in the table adopted the WHO definitions in the late 1980s or early 1990s,[123] and they are used throughout the European Union.[124] However, in 2009, the US CDC issued a report that stated that the American rates of infant mortality were affected by the high rates of premature babies in the United States compared to European countries. It also outlined the differences in reporting requirements between the United States and Europe, noting that France, the Czech Republic, Ireland, the Netherlands, and Poland do not report all live births under 500 g and/or 22 weeks of gestation.[125][126][127] However, differences in reporting are unlikely to be the primary explanation for the high rate of infant mortality in the United States compared to countries at a similar level of economic development. Rather, the report concluded that the primary reason for the higher infant mortality rate in the US compared to Europe was the much higher number of preterm births.[127]

Until the 1990s, Russia and the Soviet Union did not count, either as a live birth or as an infant death, extremely premature infants that were born alive but failed to survive for at least seven days (infants born weighing less than 1,000 g, of less than 28 weeks gestational age, or less than 35 cm in length, who that breathed, had a heartbeat, or exhibited voluntary muscle movement).[128] Although such extremely premature infants typically accounted for only about 0.5% of all live-born children, their exclusion led to an estimated 22%–25% lower reported IMR.[d] In some cases, too, perhaps because[*speculation?*] hospitals or regional health departments were held accountable for lowering the IMR in their catchment area, infant deaths that occurred in the 12th month were "transferred" statistically to the 13th month (i.e., the second year of life), and thus no longer classified as an infant death.[129][130]

Brazil

In certain rural developing areas, such as northeastern Brazil, infant births are often not recorded, resulting in the discrepancies between the infant mortality rate (IMR) and the actual number of infant deaths. Access to vital registry systems for infant births and deaths is an extremely difficult and expensive task for poor parents living in rural areas. Government and bureaucracies tend to show an insensitivity to these parents and produce broad disclaimers in the IMR reports that the information has not been properly reported, resulting in discrepancies. Little has been done to address the underlying structural problems with the vital registry systems regarding the lack of reporting in rural areas, which has created a gap between the official and popular meanings of child death.[84]

It is also argued that the bureaucratic separation of vital death recording from cultural death rituals is to blame for the inaccuracy of the infant mortality rate (IMR). Vital death registries often fail to recognize the cultural implications and importance of infant deaths. These systems can be an accurate representation of a region's socio-economic situation, if the statistics are valid, which is unfortunately not always the case. An alternate method of collecting and processing statistics on infant and child mortality is via "popular death reporters" who are culturally linked to infants and may be able to provide more accurate statistics.[84] According to ethnographic data, "popular death reporters" refers to people who had inside knowledge of *anjinhos*, including the grave-digger, gatekeeper, midwife, popular healers etc.—all key participants in mortuary rituals.[84] Combining the methods of household surveys, vital registries, and asking "popular death reporters" can increase the validity of child mortality rates. However there remain barriers that affect the validity of statistics of infant mortality, including political economic decisions: numbers are exaggerated when international funds are being doled out; and underestimated during reelection.[84][*failed verification*]

The bureaucratic separation of vital death reporting and cultural death rituals stems, in part, from structural violence.[131] Individuals living in rural areas of Brazil need funds for lodging and travel in order to report births to a Brazilian Assistance League office, this deters registration as often these individuals are of lower income and cannot afford such expenses,[84] similar barriers exist when choosing to report infant mortality. Financial constraints such as reliance on food supplementations may also lead to skewed infant mortality data.[84]

In developing countries such as Brazil the deaths of impoverished infants are regularly not recorded into the countries vital registration system, which skews statistics. Culturally validity and contextual soundness can be used to ground the meaning of mortality from a statistical standpoint.[*clarification needed*] In northeast Brazil they have accomplished this standpoint while conducting an ethnographic study combined with an alternative method to survey infant mortality. These types of techniques can develop quality data that will lead to a better portrayal of the IMR of a region.[84]

Political economic reasons have been seen to skew the infant mortality data in the past when governor Ceara devised his presidency campaign on reducing the infant mortality rate during his term in office. By using this new way of surveying, these instances can be minimized and removed, overall creating accurate and sound data.[84][*relevant?*]

Epidemiology

World historical and predicted infant mortality rates per 1,000 births (1950–2050) UN, medium variant, 2008 rev.[132]

Years	Rate	Years	Rate
1950–1955	152	2000–2005	52
1955–1960	136	2005–2010	47

1960–1965	116	2010–2015	43
1965–1970	100	2015–2020	40
1970–1975	91	2020–2025	37
1975–1980	83	2025–2030	34
1980–1985	74	2030–2035	31
1985–1990	65	2035–2040	28
1990–1995	61	2040–2045	25
1995–2000	57	2045–2050	23

Global IMR, as well as the IMR for both less developed countries (LDCs) and more developed countries (MDCs), declined significantly between 1960 and 2001. According to the State of the World's Mothers report by Save the Children, the world IMR declined from 126 in 1960 to 57 in 2001.[133] The global neonatal mortality rate, NMR, decreased from 36.6 in 1990 to 18.0 in 2017.[134]

However, IMR was, and remains, higher in LDCs. In 2001, the IMR for 91 LDCs was about 10 times as large as it was for 8 MDCs. On average, for LDCs, the IMR is 17 times higher than that of MDCs.[*clarification needed*] Also, while both LDCs and MDCs made significant reductions in IMR, the reduction rate has been lower in less developed countries than among the more developed countries. Among many low- and middle-income countries, there is also substantial variation in infant mortality rate at a subnational level.[135]

As the lowest rate, in Monaco, is 1.80, and the highest IMR, in Afghanistan, is 121.63, a factor of about 67 separates them.

Top and bottom five countries by this measure (2013 estimates)[136]

Rank	Country	Infant mortality rate (deaths/1,000 live births)
1	Afghanistan	121.63
2	Niger	109.98
3	Mali	109.08
4	Somalia	103.72
5	Central African Republic	97.17
218	Sweden	2.74
219	Singapore	2.65
220	Bermuda	2.47
221	Japan	2.21
222	Monaco	1.80

United Kingdom

A study published in the British Medical Journal in 2019 found that the rate of infant mortality in England had increased with an additional 24 infant deaths per 100,000 live births per year. There was no significant change from the pre-existing trend in the most affluent areas, thus the rise disproportionately affected the poorest areas of the country, and was attributed largely to rising child poverty, as a result of sustained reductions in the welfare benefits available to families with children.[137]

United States

Of the 27 most developed countries, the U.S. has the highest infant mortality rate, despite spending more on health care, per capita, than any other country.[138] Significant racial and socio-economic differences in the United States affect the IMR, in contrast with other developed countries with more homogeneous populations. In particular, IMR varies greatly by race in the US. The average IMR for the country as a whole is therefore not a fair representation of the wide variations that exist between segments of the population.[139] Many theories

have been explored as to why these racial differences exist, with socio economic factors usually coming out as a reasonable explanation. However, more studies have been conducted around this matter, and the largest advancement is around the idea of stress and how it affects pregnancy.[citation needed]

In the 1850s, the infant mortality rate in the United States was estimated at 216.8 per 1,000 white babies and 340.0 per 1,000 African American babies,[citation needed] but rates have significantly declined in modern times. This declining rate has been mainly due to modern improvements in basic health care and technology, as well as medical advances.[140] In the last century, the infant mortality rate has decreased by 93%.[44] Overall, the rates per 1,000 births have decreased drastically from 20 deaths in 1970 to 6.9 deaths in 2003. In 2003, the leading causes of infant mortality in the United States were congenital anomalies, disorders related to immaturity, AIDS, and maternal complications.[citation needed] Smoking during pregnancy declined to 10.2% with 12.4% of these births being low birth weights, compared with 7.7% of births being low birth weights for non-smokers. Overall, babies born with low birth weight increased to 8.1% between 2003 and 2004.[141] According to the *New York Times*, "the main reason for the high rate is preterm delivery, and there was a 10% increase in such births from 2000 to 2006." Between 2007 and 2011, however, the preterm birth rate has decreased every year. In 2011, 11.73% of babies were born before the 37th week of gestation, down from a high of 12.80% in 2006.[142]

Economic expenditures on labor and delivery and neonatal care are relatively high in the United States. A conventional birth averages US$9,775 with a C-section costing US$15,041.[143][failed verification] Preterm births in the US have been estimated to cost $51,600 per child, with a total yearly cost of $26.2 billion.[144] Despite this spending, several reports state that infant mortality rate in the United States is significantly higher than in other developed nations.[23][145][146] Estimates vary; the CIA's *World Factbook* ranks the US 55th internationally in 2014, with a rate of 6.17, while the UN figures from 2005 to 2010 place the US 34th.[full citation needed]

Differences in measurement could play a substantial role in the disparity between the US and other nations. A non-viable birth in the US could be registered as a stillbirth in similarly developed nations like Japan, Sweden, Norway, Ireland, the Netherlands, and France, thereby reducing their IMR.[127] Neonatal intensive care is also more likely to be applied in the US to marginally viable infants, although such interventions have been found to increase both costs and disability. A study following the implementation of the Born Alive Infant Protection Act of 2002 found universal resuscitation of infants born between 20 and 23 weeks increased the neonatal spending burden by $313.3 million while simultaneously decreasing quality-adjusted life years by 329.3.[147]

The vast majority of research conducted in the late twentieth and early twenty-first century indicates that African-American infants are more than twice as likely to die in their first year of life than white infants. Although a decline occurred from 13.63 deaths in 2005 to 11.46 deaths per 1,000 live births in 2010, non-Hispanic black parents continued to report a rate 2.2 times as high as that for non-Hispanic white parents.[148]

Contemporary research findings have demonstrated that nationwide racial disparities in infant mortality are linked to the experiences of the postpartum parent and that these disparities cannot be totally accounted for by socio-economic, behavioral or genetic factors.[23] The Hispanic paradox, an effect observed in other health indicators, appears in the infant mortality rate, as well. Hispanic postpartum parents see an IMR comparable to non-Hispanic white postpartum parents, even with lower educational attainment and economic status.[149] According to Mustillo's CARDIA (Coronary Artery Risk Development in Young Adults) study, "self-reported experiences of racial discrimination were associated with pre-term and low-birthweight deliveries, and such experiences may contribute to black-white disparities in prenatal outcomes."[150] A study in North Carolina, for example, concluded that "white women who did not complete high school have a lower infant mortality rate than black college graduates."[151] Likewise, dozens of population-based studies indicate that "the subjective, or perceived experience of racial discrimination is strongly associated with an increased risk of infant death and with poor health prospects for future generations of African Americans."[23]

African American

While earlier parts of this article have addressed racial differences in the infant death rate, a closer look into the effects of racial differences within the country is necessary to view discrepancies. Non-Hispanic Black women have the highest infant mortality rate with a rate of 11.3, while the IMR among white women is 5.1.[152] Black women in the United States also experience a shorter life expectancy than white women, so while a higher IMR amongst black women is not necessarily surprising, it is still rather disturbing.[153][editorializing]

While the popular argument is that due to the trend of black women being of a lower socio-economic status there is in an increased likelihood of a child suffering, and while this does correlate, the theory falls apart when

we look at Latino IMR in the United States.[*editorializing*] Latino people are almost as likely to experience poverty as blacks in the U.S., however, the infant mortality rate of Latinos is much closer to white women than it is to black women. The poverty rate for blacks is 24.1% and for Latinos it is 21.4%; if there is a direct correlation, then the IMR of these two groups should be rather similar, however, blacks have an IMR double that of Latinos.[154] Also, for black women who move out of poverty, or never experienced it in the first place, their IMR is not much lower than their counterparts experiencing higher levels of poverty.

Tyan Parker Dominguez at the University of Southern California offers a theory to explain the disproportionally high IMR among black women in the United States. She says African American women experience stress at much higher rates than any other group in the country. Stress produces particular hormones that can induce labor and contribute to other pregnancy problems. Considering premature birth is one of the leading causes of death of infants under the age of one, early labor is a legitimate concern. The idea of stress as a factor in IMR spans socio-economic status as Parker Dominguez says that for lower-class women stress comes from an unstable family life and chronic worry over poverty, while for middle-class women, battling racism, real or perceived, can be an extreme stressor.[155]

Others believe black women are predisposed to a higher IMR, meaning ancestrally speaking, all women from African descent should experience an elevated rate. This theory is quickly disproven by looking at foreign-born African immigrants, these women come from a completely different social context and are not prone to the higher IMR experienced by American-born black women.[155] Arline Geronimus, a professor at the University of Michigan School of Public Health calls the phenomenon "weathering". She claims constantly dealing with disadvantages and racial prejudice causes black women's birth outcomes to deteriorate with age. Therefore, younger black women may experience stress with pregnancy due to social and economic factors, but older women experience stress at a compounding rate and therefore have pregnancy complications aside from economic factors.[156]

Mary O. Hearst, a professor in the Department of Public Health at Saint Catherine University, researched the effects of segregation on the African American community to see if it contributed to the high IMR in black children.[157] Hearst claims that residential segregation contributes to the high rates because of the political, economic, and health implications it poses on black mothers regardless of their socioeconomic status. Racism, economic disparities, and sexism in segregated communities are all examples of the daily stressors that pregnant black women face, and are risk factors for conditions that can affect their pregnancies such as pre-eclampsia and hypertension.[*citation needed*]

Studies have also shown that high IMR is due to the inadequate care that pregnant African Americans receive compared to other women in the country.[158] In another study, it was shown that Black patients were more likely to receive ibuprofen after surgery instead of oxycodone.[159] This unequal treatment stems from the idea that there are racial medical differences and is also rooted in racial biases and controlled images of black women. Because of this unequal treatment, research on maternal and prenatal care received by African American women and their infants,[160] finds that black women do not receive the same urgency in medical care; they are also not taken as seriously regarding pain they feel or complications they think they are having, as exemplified by the complications tennis-star Serena Williams faced during her delivery.[161]

Several peer-reviewed articles have documented a difference in the levels of care a black patient receives regardless of whether they have insurance. For white women IMR drops after age 20, and remains the same until she is in her 40s; for black women IMR does not decrease when accounting for higher education, nor change based on age, suggesting that there is a racial element.[162] There is another element that must be considered: the effect of the intersection of race and gender. Misogynoir is a commonly cited and overlooked issue.[163] Black feminists have often been cited as the backbone of numerous Civil Rights events, but they feel overlooked when it comes to meaningful change that positively changes the lives of Black women specifically.[164] During the June 2020 Black Lives Matter protests, many black feminists criticized the movement for excluding them.[165] When examined through this lens, the increased rates of IMR of African American women becomes a matter of equity and an issue of social justice.

Strides have been made, however, to combat this epidemic. In Los Angeles County, health officials have partnered with non-profits around the city to help black women after the delivery of their child. One non-profit that has made a large impact on many lives is Great Beginnings For Black Babies in Inglewood. The non-profit

centers around helping women deal with stress by forming support networks, keeping an open dialogue around race and family life, and also finding these women a secure place in the workforce.[166]

Some research argues that to end the high infant mortality rate of black children, the country needs to fix the social and societal issues that plague African Americans,[167] such as institutional racism, mass incarceration, poverty, and health care disparities that are present amongst the African American population. Following this theory, if institutional inequalities are addressed and repaired by the United States Government, this will reduce daily stressors for African Americans, and African American women in particular, and lessen the risk of complications in pregnancy and infant mortality. Others argue that increasing diversity in the health care industry can help reduce the IMR as more representation can tackle deep-rooted racial biases and stereotypes that exist towards African American women.[168] Another attempt to reduce high IMR among black children is the use of doulas throughout pregnancy.[160]

History

It was in the early 1900s when countries around the world started to notice that there was a need for better child health care services; first in Europe, and then with the United States creating a campaign to decrease the infant mortality rate. With this program, they were able to lower the IMR from 100 deaths to 10 deaths per every 1,000 births.[169] When infant mortality began being noticed as a national problem it was viewed a social problem, and middle class American women with an educational background started to create a movement to provide housing for families of a lower social class. Through this movement they were able to establish public health care and government agencies, which in turn made more sanitary and healthier environments for infants. Medical professionals helped further the cause for infant health by creating the field of pediatrics, which is devoted to the medical care of children.[170]

United States

In the 20th century decreases in infant mortality around the world were linked to several common trends, including social programs, improved sanitation, improved access to healthcare, and improved education, as well as scientific advancements like the discovery of penicillin and the development of safer blood transfusions.[171]

In the United States, improving infant mortality in the early half of the 20th century meant tackling environmental factors. By improving sanitation, especially access to safe drinking water, the United States dramatically decreased infant mortality, which had been a growing concern in the United States since the 1850s.[172] During this time the United States also endeavored to increase education and awareness regarding infant mortality. Pasteurization of milk also helped the United States combat infant mortality in the early 1900s, as it helped curb disease in infants.[173] These factors, on top of a general increase in the standard of living in urban areas, helped the United States make dramatic improvements to their rates of infant mortality in the early 20th century.

Although the overall infant mortality rate was sharply dropping during this time, within the United States infant mortality varied greatly among racial and socio-economic groups. Between 1915 and 1933 the change in infant mortality per 1,000 births was, for the white population, 98.6 down to 52.8 per 1,000, and for the black population, 181.2 to 94.4 per 1,000 - studies imply that this has a direct correlation with relative economic conditions between these populations.[174] Additionally, infant mortality in southern states was consistently 2% higher than other regions in the US across a 20-year period starting in 1985. Southern states also tend to perform worse on predictors for higher infant mortality, such as per capita income and poverty rate.[175]

In the latter half of the 20th century, a focus on greater access to medical care for women spurred declines in infant mortality in the United States. The implementation of Medicaid, granting wider access to healthcare, contributed to a dramatic decrease in infant mortality, as did greater access to legal abortion and family-planning care, such the IUD and the birth control pill.[176]

In the decades following the 1970s, the United States' decreasing infant mortality rates began to slow, falling behind China's, Cuba's, and other developed countries. Funding for the federally subsidized Medicaid and Maternal and Infant Care programs was sharply reduced, and availability of prenatal care greatly decreased for low-income parents.[177]

China

The growth of medical resources in the People's Republic of China's during the latter half of the 20th century partly explains its dramatic improvement regarding infant mortality during this time. The Rural Cooperative Medical System, which was founded in the 1950s, granted healthcare access to previously underserved rural

populations, and is estimated to have covered 90% of China's rural population throughout the 1960s. The Cooperative Medical System achieved an infant mortality rate of 25.09 per 1,000; while it was later defunded, leaving many rural populations to rely on an expensive fee-for-service system, the rate continued to decline.[178] As the Cooperative Medical System was replaced, the change caused a socio-economic gap in accessibility to medical care in China, however this was not reflected in its declining infant mortality rate; prenatal care was increasingly used, and delivery assistance remained accessible.[179]
China's one-child policy, adopted in the 1980s, negatively impacted its infant mortality. Women carrying unapproved pregnancies faced state consequences and social stigma and were thus less likely to use prenatal care. Additionally, economic realities and long-held cultural factors incentivized male offspring, leading some families who already had sons to avoid prenatal care or professional delivery services, and causing China to have unusually high female infant mortality rates during this time.[180]

Yorum

Neonatoloji Verileri Bebek ölümleri: 0-1 yaş arasındaki ölüm oranları doğrudan Yenidoğan Dönemi ve onunla ilişkili olduğu için bu kapsamda ele alınmaktadır. İlk bir ay dışında da sağlıksız prematüre ve diğer sorunlu olanlar ölebilmektedir. Bu oran bin canlı doğumlara göre irdelenmektedir, bunun anlamı gebelikte de canlı doğum oranının arttırılması ile de temelden değişmektedir.

Ölümlerin azaltılmasında, emzirme, aşılama ve beslenme boyutu ile oranda belirgin düşüş yaşanabilmektedir.

Oranlardaki farklılıklar: Ülkemizde Bölgelere göre farklı sonuçlar elde edilirken, Neonatoloji Bilim Dalı ile standartların gelmesi ile belirgin bir azalma gözlenmiştir. Ülkemizde malformasyonlardan ölenler katılırken, diğer ülkelerde çıkarılmaktadır. Bu oran %2,5 majör yaşamsal denilirse, bizdeki oranlardan 2,5 oranında azlık görülebilir.

Her bir ünite kendi rakamlarını Neonatoloji Derneğine sunmakta, ancak net güvenilir rakam Devlet rakamları olarak ele alınmalıdır. Üniversite Hastanelerine sevk boyutu ile rutin alınması zorunlu olan merkezler daha net ve gerçekçi boyutta olduğu düşünülebilir.

Burada sunulan oranlar: 1950 yılında 22,5 iken, 4.5 inmiştir. Anlaşılacağı gibi anomaliler çıkarılmıştır. 1 yaşına kadar olan ölümler de %65'den %29 oranına inmiştir. Bu oran ülkemizde %11-17 arasındadır.

Dönemler: Bu süreçte, gebelik boyutu, yenidoğan dönemi ve yenidoğan dışı farklı ele alınsa bile, tüm yaşam, varlık oluşumu gebelikte olduğu için buradan ele alınmalıdır. Bir şey birden uzaydan gelecek değil, doğuştan, yaratılıştan olmasını beklemek daha bilimsel olacaktır. Bir aylık süreçten sonra ölümler de bebeğe bakarak irdelenmelidir.

Başlıca ölüm nedenleri: Ölüm nedenlerine bakılınca, gebelik ve yenidoğan dönemi ile bağlantılı olduğu anlaşılacaktır. Prematürelik, anomaliler ve ani bebek ölüm sendromu gibi tanımlamalar bunu doğrulamaktadır.

Prematürelik: Bebeklerin olgunlaşmadan gebeliğin sonlanması ile oluşan durum, tarihsel süreç için bir ana neden ve unsurdur. Bu bebeklerin bakımları yapılmadığı, hatta ölüme terk edildikleri dikkate alınınca, zamanın en büyük yaklaşımı, gelişimi ve değişimi, bunlara doğumda canlandırma ile yaşatma ve minimal sorunlu olarak yaşamalarını sağlamak olmaktadır.

Tüm organ sistemlerinin gelişmemesi nedeniyle, zamanımızda embriyolojik açıdan da bunların izlemi ve tanımlanması önemlidir. Tıbbi yaklaşım genel değil, bireye özgü olmak zorundadır.

Ani Bebek Ölümü Sendromu: Batı ülkelerinde sık tanımlanmasına karşın, devamlı izlem altında tutulması ötesinde, nedensiz bir sorun olmayacağı mantığı ile Ülkemizde pek kabul görmemektedir.

Anomaliler: Makalede, ölümlerin %7-27'si bu nedenle olduğunu tanımlamaktadır. Son gebelik taramaları ile bunun %39 azaldığı da ifade edilmektedir.

Bir ölüm oranı veri anomalilerden dolayı en düşük oran %7 veriliyorsa, kanımızca bu %2,5 olması gerekirken, yüksek olması da ötenazi kavramı akla gelmektedir. Groningen Protokolünde 12 yaşında kadar, tedavisi olmayanların ötenazi yapılabileceğini belirtmektedir. Amerika da Devlet Bakım Desteğini kaldırıyor, aile günde 12bin dolar olan yoğun bakımı ödemesi gerekiyor. Bunun için kurulan Hastane Etik Kurulları, onaylaması ile ötenazi uygulanıyor. Tanımlama tedavi kesilmesi, ölüme terk edilmesi, canlandırma yapılmaması olarak ifade ediliyor, ötenazi denilmiyor.

Gebelik Haftasına göre Düşük Ağırlıklı Bebekler: Bir kişi gebelik haftası ve yaşamında da kilo alamıyor ve sağlıklı bir bedensel yapıya, organ sistematiğine uyamıyorsa, çeşitli nedenlerden ölmeleri beklenir. Bu açıdan çok detaylı irdelenmeleri sorun olmadan, destek ve bakım uygulanmalıdır.

Nitekim ölümlerin %60-80 oranında bu kapsamda bulunmaktadır.

Malnutrisyon: Malnutrisyon, bebek beslenmesinde önemli boyutlar olduğu, sadece protein, kalori vermek değil, birçok enzimler ve tüm diğer kök hücresi dahil bazı parametrelerin sağlanması önemlidir. Bu açıdan emzirmek önemlidir. Anne sütünü sağıp biberonla vermek bile büyük kayıplara neden olmaktadır. Kısaca malnütrisyonu önlemek istiyorsanız, emzirmeyi sağlamak ve devamlılığını temin etmeli, bu konuda sağlık elemanları eğitilmeli, sertifikalı olmalıdırlar.

Doğa mikrop dolu, bebekler ise steril ortamdan gelmektedirler: Mikrop öldürmek değil, probiyotik denilen imkan ile, flora mikroplarını almalıdır, bunun en önemli kaynağı da anne sütü, emzirmedir.

Çevre: Elbette fiziki çevre önemli ama temel öne çıkan aile ortamı, anne kucağı olmaktadır. sevgi bu boyutun çekirdeğidir.

Fiziksel olanlar burada çok yorumlanmayacak, sadece makalede sunulmaktadır.

Travma Boyutu: Her gebelik ve doğum birçok açıdan sorunları da beraberinde getirmektedir. Bunların çözümü için Sosyal Yardımlaşma Bakanlığı üstünde her bir kişi için program yaparak yaklaşmaktadır. Bu önemli bir önleyici neden olmaktadır.

Sosyo-ekonomik Faktörler: Elbette sosyal yapı, önemli boyutta olmaktadır. Ancak, Ülkemizde her bireyin sağlık kuruluşlarına başvuru hürriyeti olup, ücretsizdir, sadece konfor nedeni ile özel sektör dışında ücret ödenmemektedir. İlaçlar da ücretsiz alınmaktadır. Dolayısıyla beklenen boyut ülkemizde olmamaktadır.

Kültürel Boyut: Büyük aile yapısı, Tarım Kültüründe zaten bakan, kollayan sülalede vardır. Diğer kültürlerde de Devlet bu işlevi yürütür.

Bebeklerin cinsiyetleri etkinliği: Bazı kültürlerde kız çocukları istenmez denilir, burada ise kızlar erkek getirecek, erkek çocuklar da kız getirecek ve dengelenecektir. Seçilmiş evlat geleceği için daha makbul olacaktır denilebilir.

Gebelikler arasındaki ara: Ekonomik açıdan bir toplum, gelecek nesillerin kendilerine bakacağı ve bir miras gibi olacağı düşüncesi ile 7 çocuk yapmaktan, sonra 5 çocuk, şimdi ise 3 çocuk olması için Devlet desteği olmaktadır. Doğurganlık binde iki altına inmiş, bu nüfusun azalması anlamında olacağı için Devlet uyarılarda bulunmakta, teşvik etmektedir.

Gelişmiş ülkelerde 3 yıllık ara altında %57 olarak tanımlanmakta, bunun bir nedeni de ileri yaş gebeliklerinden dolayıdır. %40 aile planlaması aldığı irdelenmektedir.

Ülkemizde Aile Planlaması, sadece gebelik değil, her türlü sağlık yaklaşımlarının da yapıldığı yer olmaktadır.

Oluşumunu engelleme ve önleme: Ölüm tedavi ile değil, temel yaklaşım sağlıklı olmanın sürdürülmesi, temini, sağlık kontrolleri ile erken tanı ve yaklaşım ile yapılması temel ilkedir.

Ekonomik gerekçeler: Sağlık yaklaşımlarında bilinçlenme olursa, ekonomi ikinci planda kalmaktadır. Ülkemizde ise sağlıkta ekonomi geçerli olmaz denilir. Gerekiyorsa prematüre bebek ambulans değil, helikopter ve uçak ile nakledilmektedir. Şehir içi nakiller yerine, zaten bu bebeklere bakılacak yerlerde, Yoğun Bakımlarda doğumlar gerçekleştirilmektedir. Sadece sevk olursa gündeme gelmektedir.

Anne ve Bebek: Medikal yaklaşımlarda anne ve bebek ayrılmamakta, anne yanında tutulması, Rooming-in yaklaşımı ötesinde, Yoğun Bakım Ünitelerinde de bebeğin durumuna göre annelere de yer ayrılmaktadır.

Değerlendirmeler: Hel ülkede farklı yaklaşımlar olabilmektedir. Makalede sunulmakta, Ülkemizde ise tüm bebekler ve olgular aynı kapsamdadır. Özel olanlar ayrıca konfor yaklaşımı için ücret öderler. Hastane ücretlerinin temeli ve çekirdeği de Devlet ödemektedir.

Afrika Kökenliler: Amerika'da Afrika kökenlilerde farklı olduğu, 3 kat kadar ölüm oranlarının yüksek olduğu yaklaşımı vardır. Genetik olarak hepimiz kardeşiz, arada fark olmadığıdır, bunun Tıp Bilimi değil, sosyal ve ekonomik olduğu görülmektedir.

Prematürelerin Yaşam Hakkının sağlanması

Tıbbi Deontoloji Nizamnamesi Hukuk boyutunda olduğu için, buna aykırı davrandığı tespit ve ispat edilenler meslekten men cezası ile karşılaşabilirler.

Başlıca genel Etik kural ve esaslar[15]:

- ✓ **Görevi; insan sağlığı, hayatı ve şahsiyetine ihtimam ve hürmet göstermektir, bu yaşam sınırında olan prematüreler için önceliklidir**: *Yaklaşım olarak belirtilen insanlık kriterlerinin yapılması, ancak sevgi temelinde olanlar için olabilir görülmektedir*. Umumi kaide ve esaslar Madde 2 – Tabip ve diş tabibinin başta gelen vazifesi, insan sağlığına, hayatına ve şahsiyetine ihtimam ve hürmet göstermektir.
- ✓ **Eşitlik her boyutta geçerlidir, yaşayabilecek veya yaşama ümidi olmayan diye bir ayırımda yapılamaz**: *Yaklaşım hem muayene ve hem de tedavi boyutu ile bütündür.* Tabip ve diş tabibi; hastanın cinsiyeti, ırkı, milliyeti, dini ve mezhebi, ahlaki düşünceleri, karakter ve şahsiyeti, içtimai seviyesi, mevkii ve siyasi kanaati ne olursa

olsun, muayene ve tedavi hususunda azami dikkat ve ihtimamı göstermekle mükelleftir.

- ✓ **Burada tesir, etki, nüfus ve herhangi bir başka dayanak değil, doğrudan bireye bakarak karar vermelidir**: *Yaklaşım vicdanı, etik ilkelerde ve hukuk, bireyin hakları temelinde olmalıdır, burada bir baskı ve bir kalıp içinde olmayacağı gibi, özellikle prematürelere her türlü desteği göstermesi beklentidedir. Yapmaz ise hukuki ceza alır ve meslekten men cezası ile cezalandırılabilir.* Madde 6 – Tabip ve diş tabibi, sanat ve mesleğini icra ederken, hiçbir tesir ve nüfuza kapılmaksızın, vicdani ve mesleki Kanaat'ına göre hareket eder. Tabip ve diş tabibi, tatbik edeceği tedaviyi tayinde serbesttir.
- ✓ **Hekim, tüm sağlık elemanları, sadece Tıp Mesleği dışında da rol model olmaları beklentisi vardır. Mahkemelerde bu açıdan şahit olmaları doğal beklentidir:** *Yaklaşım olarak daima hukuk, haklar, bireyin haklarının üstünlüğü temelindedir.* Madde 7 – Tabip ve diş tabibi sanat ve mesleğinin icrası dışında dahi olsa, meslek ahlak ve adabı ile telif edilemeyen hareketlerden kaçınır.
- ✓ **Hekimler sağlık yaklaşımlarında ticari amaç değil, özel yaklaşımlarda bile tarife üzerinden değerlendirme yaparlar**: *Yaklaşım olarak dürüstlük, güven bu sayede pekişmesi beklenir.* Madde 8 – Tabiplik ve diş tabipliği mesleklerine ve tedavi müesseselerine, ticari bir veçhe verilemez.
- ✓ **Burada söz edilen tababet şerefi olsa da temelde vurgulanan insanlık boyutudur**: *Yaklaşım olarak her türlü hukuk ötesi, insanlık ve etik ilkelerde olması beklenir ve uygular.* Tabip ve diş tabibi, yapacağı yayınlarda tababet mesleğinin şerefini üstün tutmaya mecbur olup, her ne suretle olursa olsun, yazılarında kendi reklamını yapamaz. Tabip ve diş tabibi, gazetelerde ve diğer neşir vasıtalarında, reklam mahiyetinde teşekkür ilanları yazdıramaz.

<u>Bu yaklaşımlar Türk Ceza Kanunu ile de uyumludur[19].</u>

- ➢ **Burada ilk vurgu, kişi hak ve özgürlüklerinin korunması ve suç işlenmesinin önlenmesi ise, hekimlere çok iş düşmektedir**: *Yaklaşım olarak her türlü imkânı, danışmanlığı, konsültan taleplerini de yerine getirerek uygulamalıdır.* Ceza Kanununun amacı: Madde 1- (1) Ceza Kanununun amacı; kişi hak ve özgürlüklerini, kamu düzen ve güvenliğini, hukuk devletini, kamu sağlığını ve çevreyi, toplum barışını korumak, suç işlenmesini önlemektir.
- ➢ **Bir suç kanıta dayalıdır. Jüri sistematiğinde varsayımlar içinde olunabilir. Hukuk somut eyleme dayanır. Yapılmış veya yapılmamıştır, tereddüt olmaz. Hekim garanti vermez, ama tam medikal gerekeni yapar**: *Yaklaşım olarak hekim başarı ve başarısızlık değil medikal gerekenleri yapmalıdır.* Suçta ve cezada kanunilik ilkesi: Madde 2- (1) Kanunun açıkça suç saymadığı bir, doğrudan fiil için kimseye ceza verilemez ve güvenlik tedbiri uygulanamaz.
- ➢ **Kurallar, düzenlemeler hekimi bağlamaz, medikal bilim üzere olmalı ve gerekenleri yapmalıdır**: *Yaklaşım olarak amir istedi diye bir gerekçe olamaz, uçak, helikopter ile ne uygun olursa onunla sevk edilmelidir.* (2) İdarenin düzenleyici işlemleriyle suç ve ceza konulamaz.

- **Ortak akıl, Kamu Vicdanı, toplum görüşü gibi gerekçeler, bir başka şey ile şeriat veya dini yaklaşım denilerek, peygamberden 2 asır sonradan oluşturulanlar ile bazı görüşler, yorumların yeri olmaz. Uygulayan da ceza alır meslekten atılır. Bilim temelinde, hastaya ne gerekirse kendi vicdanına göre yapılmalıdır**: *Yaklaşım olarak hiçbir zaman, hiçbir gerekçe ile başkası değil, doğrudan kendi kararı ile yaklaşım yapar*. (3) Kanunların suç ve ceza içeren hükümlerinin uygulanmasında kıyas yapılamaz. Suç ve ceza içeren hükümler, kıyasa yol açacak biçimde geniş yorumlanamaz.
- **Bir somut eylem olduğunda: bilerek kasıtlı, dikkat ve özen eksikliği, ihmal, kaza gibi durumlar için doğrudan kişi yargılanır. Somut veri üzerine olur ise savunma bu durumda verilir, hekim sıklıkla açıklama yapar ve tamamen yanlış yorumlandığı için mahkeme olduğu görülür**: *Yaklaşım olarak suçu ispat etsinler sonra savunma verilir, hekim sıklıkla olayı, hastayı açıklar, bilgilendirir, ortada sıklıkla suç değil yanlış anlama, yorum vardır*. Adalet ve kanun önünde eşitlik ilkesi: Madde 3- (1) Suç işleyen kişi hakkında işlenen fiilin ağırlığıyla orantılı ceza ve güvenlik tedbirine hükmolunur.
- **Eşitlik ilkesi vardır, bir kurul, komisyon ve kamu kesimi ile bir hekimin hukukta yeri eşittir. Onlar iddia ederler, siz ispat edin dersiniz, eşit yaklaşımda olur**: *Yaklaşım olarak ben komisyonum, benim kararım geçerli olmaz, ispat, kanıta göre olur, buna Adli Tıp da dahildir*. (2) Ceza Kanununun uygulamasında kişiler arasında ırk, dil, din, mezhep, milliyet, renk, cinsiyet, siyasal veya diğer fikir yahut düşünceleri, felsefi inanç, milli veya sosyal köken, doğum, ekonomik ve diğer toplumsal konumları yönünden ayrım yapılamaz ve hiçbir kimseye ayrıcalık tanınamaz.
- **Ben bilmiyordum denilemez, çünkü her birey en güçlü tanığı kendisidir. Karar verirken hâkim amaç ve güdüye bakar. Etik ve insanlık temelinde olup, bilimsel ise, elde edilen sonuca değil, niyete bakar ve sıklıkla beraat verir, vermektedir**: *Yaklaşım olarak mutlaka bir işe başlarken, amaç ve güdünüzü tanımlamalısınız, bundan sonra da bilimsel dayanak ve gerekçeler sunulmalıdır. Bu tüm hekimlerin yaşantılarında rahat, huzurlu ve mutlu olmasının anahtarıdır.* Kanunun bağlayıcılığı: Madde 4- (1) Ceza kanunlarını bilmemek mazeret sayılmaz.

ÖZET: Yaratılış üzere olan bizler geleceği bilemeyiz, bu nedenle mevcut duruma bilimsel veri ve kanıtlara göre, vicdani temeller içinde, hukuk ilkeleri temelinde, birey hakkı esas alarak yaklaşım yapmalıyız. Bu sevgi temelinde insanlık üzere olması gereklidir.
Kimsenin ne zaman yaşam başladığı ve sonlandığı üzerinde yorum yapamayacağına göre, canlılık emareleri olan her kişinin canlandırma yapılması ve tam tedavi yaklaşımlarının uygulanması gerekmektedir. İmkanlar nedeniyle daima sevk zinciri kapsamında da olunması önemlidir.
Bir kalabalık gördüm, 112 gelmiş, canlandırma yapılıyordu. Etrafta halk halka olmuş, birisi eziyet ediyorlar, adam ölmüş dedi. Ben ona bakın bu kalp atımını gösteriyor, yetersiz olduğu için masaj yapılıyor. Onlar hekim, ben de hekimim, ölmek üzere olan kişiyi yaşama dönüştürmeye çalışıyorlar, diye ekledim. Adam birden güçlü ses ile, haydi, haydi, yaşatın, mucize yaratın diye bağırmaya, halkı da tezahürata davet etti.

Kısaca insan gibi yaşamalı, insancıl duygular içinde olmalı, sevgiyi barış üzere etik ilkelerde kullanmalıyız.

Preterm birth, Wikipedia[20]

Preterm birth, also known as **premature birth**, is the birth of a baby at fewer than 37 weeks gestational age, as opposed to full-term delivery at approximately 40 weeks.[1] Extreme preterm[2] is less than 28 weeks, very early preterm birth is between 28 and 32 weeks, early preterm birth occurs between 32 and 34 weeks, late preterm birth is between 34 and 36 weeks' gestation.[8] These babies are also known as **premature babies** or colloquially **preemies** (American English)[9] or **premmies** (Australian English).[10] Symptoms of preterm labor include uterine contractions which occur more often than every ten minutes and/or the leaking of fluid from the vagina before 37 weeks.[11][12] Premature infants are at greater risk for cerebral palsy, delays in development, hearing problems and problems with their vision.[1] The earlier a baby is born, the greater these risks will be.[1]

The cause of spontaneous preterm birth is often not known.[2] Risk factors include diabetes, high blood pressure, multiple gestation (being pregnant with more than one baby), being either obese or underweight, vaginal infections, air pollution exposure, tobacco smoking, and psychological stress.[2][3][13] For a healthy pregnancy, medical induction of labor or cesarean section are not recommended before 39 weeks unless required for other medical reasons.[2] There may be certain medical reasons for early delivery such as preeclampsia.[14]

Preterm birth may be prevented in those at risk if the hormone progesterone is taken during pregnancy.[5] Evidence does not support the usefulness of bed rest.[5][15] It is estimated that at least 75% of preterm infants would survive with appropriate treatment, and the survival rate is highest among the infants born the latest in gestation.[2] In women who might deliver between 24 and 37 weeks, corticosteroid treatment may improve outcomes.[6][16] A number of medications, including nifedipine, may delay delivery so that a mother can be moved to where more medical care is available and the corticosteroids have a greater chance to work.[17] Once the baby is born, care includes keeping the baby warm through skin-to-skin contact or incubation, supporting breastfeeding and/or formula feeding, treating infections, and supporting breathing.[2] Preterm babies sometimes require intubation.[2]

Preterm birth is the most common cause of death among infants worldwide.[1] About 15 million babies are preterm each year (5% to 18% of all deliveries).[2] Late preterm birth accounts for 75% of all preterm births.[18] This rate is inconsistent across countries. In the United Kingdom 7.9% of babies are born pre-term and in the United States 12.3% of all births are before 37 weeks gestation.[19][20] Approximately 0.5% of births are extremely early periviable births (20–25 weeks of gestation), and these account for most of the deaths.[21] In many countries, rates of premature births have increased between the 1990s and 2010s.[2] Complications from preterm births resulted in 0.81 million deaths in 2015, down from 1.57 million in 1990.[7][22] The chance of survival at 22 weeks is about 6%, while at 23 weeks it is 26%, 24 weeks 55% and 25 weeks about 72%.[23][*needs update*] The chances of survival without any long-term difficulties are lower.[24]

Development of the respiratory system, Wikipedia[21]

Development of the respiratory system begins early in the fetus. It is a complex process that includes many structures, most of which arise from the endoderm. Towards the end of development, the fetus can be observed making breathing movements. Until birth, however, the mother provides all of the oxygen to the fetus as well as removes all of the fetal carbon dioxide via the placenta.

Timeline

The development of the respiratory system begins at about week 4 of gestation. By week 28, enough alveoli have matured that a baby born prematurely at this time can usually breathe on its own. The respiratory system, however, is not fully developed until early childhood, when a full complement of mature alveoli is present.

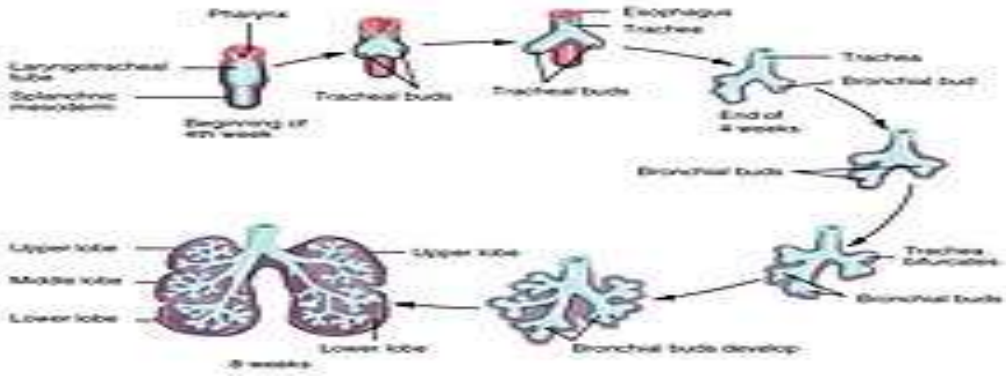
Development of the lower respiratory system

Weeks 4-7

Respiratory development in the embryo begins around week 4. Ectodermal tissue from the anterior head region invaginates posteriorly to form olfactory pits, which fuse with endodermal tissue of the developing pharynx. An olfactory pit is one of a pair of structures that will enlarge to become the nasal cavity. At about this same time, the lung bud forms. The lung bud is a dome-shaped structure composed of tissue that bulges from the foregut. The foregut is endoderm just inferior to the pharyngeal pouches. The laryngotracheal bud is a structure that forms from the longitudinal extension of the lung bud as development progresses. The portion of this structure nearest the pharynx becomes the trachea, whereas the distal end becomes more bulbous, forming bronchial buds. A bronchial bud is one of a pair of structures that will eventually become the bronchi and all other lower respiratory structures.

Weeks 7-16

Bronchial buds continue to branch as development progresses until all of the segmental bronchi have been formed. Beginning around week 13, the lumens of the bronchi begin to expand in diameter. By week 16, respiratory bronchioles form. The fetus now has all major lung structures involved in the airway.



Weeks 16-24

Once the respiratory bronchioles form, further development includes extensive vascularization, or the development of the blood vessels, as well as the formation of alveolar ducts and alveolar precursors. At about week 19, the respiratory bronchioles have formed. In addition, cells lining the respiratory structures begin to differentiate to form type I and type II pneumocytes. Once type II cells have differentiated, they begin to secrete small amounts of pulmonary surfactant. Around week 20, fetal breathing movements may begin.

Weeks 24-term

Major growth and maturation of the respiratory system occurs from week 24 until term. More alveolar precursors develop, and larger amounts of pulmonary surfactant are produced. Surfactant levels are not generally adequate to create effective lung compliance until about the eighth month of pregnancy. The respiratory system continues to expand, and the surfaces that will form the respiratory membrane develop further. At this point, pulmonary capillaries have formed and continue to expand, creating a large surface area for gas exchange. The major milestone of respiratory development occurs at around week 28, when sufficient alveolar precursors have matured so that a baby born prematurely at this time can usually breathe on its own. However, alveoli continue to develop and mature into childhood. A full complement of functional alveoli does not appear until around 8 years of age.

Fetal breathing

Although the function of fetal breathing movements is not entirely clear, they can be observed starting at 20–21 weeks of development. Fetal breathing movements involve muscle contractions that cause the inhalation of amniotic fluid and exhalation of the same fluid, with pulmonary surfactant and mucus. Fetal breathing movements are not continuous and may include periods of frequent movements and periods of no movements. Maternal factors can influence the frequency of breathing movements. For example, high blood glucose levels, called hyperglycemia, can boost the number of breathing movements. Conversely, hypoglycemia can reduce the number of fetal breathing movements. Tobacco

use is also known to lower fetal breathing rates. Fetal breathing may help tone the muscles in preparation for breathing movements once the fetus is born. It may also help the alveoli to form and mature. Fetal breathing movements are considered a sign of robust health.

Birth

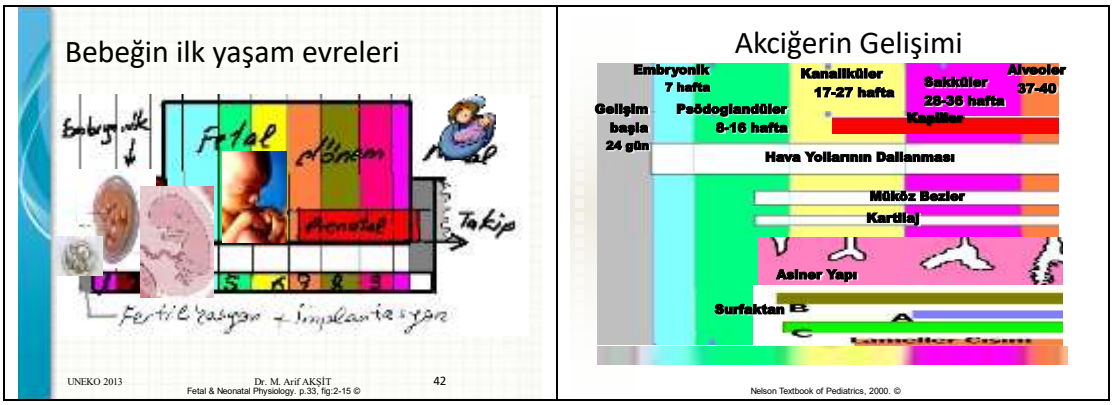
Prior to birth, the lungs are filled with amniotic fluid, mucus, and surfactant. As the fetus is squeezed through the birth canal, the fetal thoracic cavity is compressed, expelling much of this fluid. Some fluid remains, however, but is rapidly absorbed by the body shortly after birth. The first inhalation occurs within 10 seconds after birth and not only serves as the first inspiration, but also acts to inflate the lungs. Pulmonary surfactant is critical for inflation to occur, as it reduces the surface tension of the alveoli. Preterm birth around 26 weeks frequently results in severe respiratory distress, although with current medical advancements, some babies may survive. Prior to 26 weeks, sufficient pulmonary surfactant is not produced, and the surfaces for gas exchange have not formed adequately; therefore, survival is low.

Yorum

Gebelikte gelişim boyutu birçok tabakaların bir araya gelmesi ile oluşmaktadır. Alveol yapısı endoderm kökenlidir.

Çeşitli gelişim dönemlerine göre farklı gelişim içindedir, Şekil 1, özetlemektedir.

Akciğerin gelişimi: Embriyonik, Fetal ve işlevsel boyuta ulaşması



Şekil 1: Fertilize tek hücre boyut, embriyonik dönem, Gelişim (Psödoglandüler, Kanaliküler, Sakküler, Alveoler ve Doğum eylemi boyutu ile her aşaması farklılık gösterir

4 gebelik haftasında ektodermden oluşan bir tomurcuk ile oluşmakta ve dallanarak aşağıya doğru inmektedir.

Yedinci haftada (7.) Bronşiyal tomurcuk, solunum bronşiollerine doğru oluşur ve 13 haftada başlayıp 16. Haftada tamamlanır.

Damarlanma ile Alveoler bronşiol 19 haftada neticelenir. Tip I ve Tip II hücre ayırımı olmakta ve 20. Gebelik haftasında intrauterin nefes alıp verme gözlenmektedir. Tip II surfaktan üretmeye de başlamaktadır.

24. Gebelik Haftasında alveoller damarlanmanın gaz değişimine uygun hale gelmesine başladığı gözlenmektedir. Alveolde özellikle sayısal gelişmesi 8 yaşına kadar da devam edecektir.

İntrauterin nefes alınma ve verilmesi, akciğerin ödemli yapısından kurtulması, alveoldeki amniyotik sıvı ile bir etkinlik sağlamasına neden olmaktadır.

Doğumda nefes alması ile, alveoldeki amniyotik sıvı ve mukus alveolden emilir, kalan alveolde sıvanır ve bu direnci düşürür.

26 Gebelik haftasından önce yüzey gerilimi düşüren surfaktan yapımı olmaz ve daha sonra da az olduğu için yetersizdir.
Doğumda akciğer sıvı boşaltılmalı ve hava dolmalıdır, bunu ağlamak ile sağlanır. 60-70 cm Su basıncı gerekirken, normal nefes alması ile 5-10 cm su olmaktadır. Arada fark önemli boyutta, devam olursa patlama gözlenir. Volüm de 30 cm küpten ventilasyonu 3-5 cm küp olması ile çok farklıdır. Bu bir standard değil her olguya göre de uyarlanmalıdır. Kısaca hesap olguya göre yapılabilir.

NOT: Gebelikte en erken dönemden itibaren annenin bakılması, sağlık kontrollerinin yapılması önemlidir. Uterus korur, gözetir denilmemelidir.
Ayrıca doğumdan sonra da dumanlı hava değil, temiz have, polensiz ve akciğerin dokusunun sağlıklı olması önemlidir.

Signs and symptoms
Signs and symptoms of preterm labor include four or more uterine contractions in one hour. In contrast to false labour, true labor is accompanied by cervical dilation and effacement. Also, vaginal bleeding in the third trimester, heavy pressure in the pelvis, or abdominal or back pain could be indicators that a preterm birth is about to occur. A watery discharge from the vagina may indicate premature rupture of the membranes that surround the baby. While the rupture of the membranes may not be followed by labor, usually delivery is indicated as infection (chorioamnionitis) is a serious threat to both fetus and mother. In some cases, the cervix dilates prematurely without pain or perceived contractions, so that the mother may not have warning signs until very late in the birthing process.
Causes
The main categories of causes of preterm birth are preterm labor induction and spontaneous preterm labor.
Risk factors
The exact cause of spontaneous preterm birth is difficult to determine and it may be caused by many different factors at the same time as labor is a complex process.[25][26] The research available is limited with regard to the cervix and therefore is limited in discerning what is or is not normal.[12] Four different pathways have been identified that can result in preterm birth and have considerable evidence: precocious fetal endocrine activation, uterine overdistension (placental abruption), decidual bleeding, and intrauterine inflammation or infection.[27] Identifying women at high risk of giving birth early would enable the health services to provide specialized care for these women and their babies, for example a hospital with a special care baby unit such as a neonatal intensive care unit (NICU). In some instances, it may be possible to delay the birth. Risk scoring systems have been suggested as an approach to identify those at higher risk, however, there is no strong research in this area so it is unclear whether the use of risk scoring systems for identifying mothers would prolong pregnancy and reduce the numbers of preterm births or not.[28]
Maternal factors

Risk factor	Relative risk[29]	95% confidence interval[29]
Fetal fibronectin	4.0	2.9–5.5
Short cervical length	2.9	2.1–3.9
Prenatal Care Absent[30]	2.9	2.8–3.0
Chlamydia	2.2	1.0–4.8
Low socio-economic status	1.9	1.7–2.2
Large or small pregnancy weight gain	1.8	1.5–2.3
Short maternal height	1.8	1.3–2.5
Periodontitis	1.6	1.1–2.3
Celiac disease	1.4[31]	1.2–1.6[31]
Asymptomatic bacteriuria	1.1	0.8–1.5
High or low BMI	0.96	0.66–1.4
	odds ratio	
History of spontaneous preterm birth	*3.6*	3.2–4.0
Bacterial vaginosis	*2.2*	1.5–3.1
Black ethnicity/race	*2.0*	1.8–2.2
Filipino ancestry[32]	*1.7*	1.5–2.1
Unwanted pregnancy[33]:1	*1.5*	1.41–1.61
Unintended pregnancy[33]:1	*1.31*	1.09–1.58
Being single/unmarried[34]	*1.2*	1.03–1.28

Risk factors in the mother have been identified that are linked to a higher risk of a preterm birth. These include age (either very young or older),[35] high or low body mass index (BMI),[36][37] length of time between pregnancies,[38] previous spontaneous (i.e., miscarriage) or surgical abortions,[39][40] unintended pregnancies,[33] untreated or undiagnosed celiac disease,[31][4] fertility difficulties, heat exposure,[41] and genetic variables.[42]

Studies on type of work and physical activity have given conflicting results, but it is opined that stressful conditions, hard labor, and long hours are probably linked to preterm birth.[35] Obesity does not directly lead to preterm birth;[43] however, it is associated with diabetes and hypertension which are risk factors by themselves.[35] To some degree those individuals may have underlying conditions (i.e., uterine malformation, hypertension, diabetes) that persist. Couples who have tried more than one year versus those who have tried less than one year before achieving a spontaneous conception have an adjusted odds ratio of 1.35 (95% confidence interval 1.22–1.50) of preterm birth.[44] Pregnancies after IVF confers a greater risk of preterm birth than spontaneous conceptions after more than one year of trying, with an adjusted odds ratio of 1.55 (95% CI 1.30–1.85).[44]

Certain ethnicities may have a higher risk as well. For example, in the U.S. and the UK, Black women have preterm birth rates of 15–18%, more than double than that of the white population. Many Black women have higher preterm birth rates due to multiple factors but the most common is high amounts of chronic stress, which can eventually lead to premature birth.[45] Adult chronic disease is not always the case with premature birth in Black women, which makes the main factor of premature birth challenging to identify.[45] Filipinos are also at high risk of premature birth, and it is believed that nearly 11–15% of Filipinos born in the U.S. (compared to other Asians at 7.6% and whites at 7.8%) are premature.[46] Filipinos being a big risk factor is evidenced with the Philippines being the eighth-highest ranking in the world for preterm births, the only non-African country in the top 10.[47] This discrepancy is not seen in comparison to other Asian groups or Hispanic immigrants and remains unexplained.[35] Genetic make-up is a factor in the causality of preterm birth. Genetics has been a big factor into why Filipinos have a high risk of premature birth as the Filipinos have a large prevalence of mutations that help them be predisposed to premature births.[46] An intra- and transgenerational increase in the risk of preterm delivery has been demonstrated.[42] No single gene has been identified.

Marital status is associated with risk for preterm birth. A study of 25,373 pregnancies in Finland revealed that unmarried mothers had more preterm deliveries than married mothers (P=0.001).[34] Pregnancy outside of marriage was associated overall with a 20% increase in total adverse outcomes, even at a time when Finland provided free maternity care. A study in Quebec of 720,586 births from 1990 to 1997 revealed less risk of preterm birth for infants with legally married mothers compared with those with common-law wed or unwed parents.[48][*needs update*]

Factors during pregnancy

Medications during pregnancy, living conditions, air pollution, smoking, illicit drugs or alcohol, infection, or physical trauma may also cause a preterm birth.

Air pollution: Living in an area with a high concentration of air pollution is a major risk factor for preterm labor, including living near major roadways or highways where vehicle emissions are high from traffic congestion or are a route for diesel trucks that tend to emit more pollution.[49][50][13]

The use of fertility medication that stimulates the ovary to release multiple eggs and of IVF with embryo transfer of multiple embryos has been implicated as a risk factor for preterm birth. Often labor has to be induced for medical reasons; such conditions include high blood pressure,[51] pre-eclampsia,[52] maternal diabetes,[53] asthma, thyroid disease, and heart disease.

Certain medical conditions in the pregnant mother may also increase the risk of preterm birth. Some women have anatomical problems that prevent the baby from being carried to term. These include a weak or short cervix (the strongest predictor of premature birth).[54][55][56][51] Women with vaginal bleeding during pregnancy are at higher risk for preterm birth. While bleeding in the third trimester may be a sign of placenta previa or placental abruption—conditions that occur frequently preterm—even earlier bleeding that is not caused by these conditions is linked to a higher preterm birth rate.[57] Women with abnormal amounts of amniotic fluid, whether too much (polyhydramnios) or too little (oligohydramnios), are also at risk.[35] Anxiety and depression have been linked as risk factors for preterm birth.[35][58]

The use of tobacco, cocaine, and excessive alcohol during pregnancy increases the chance of preterm delivery. Tobacco is the most commonly used drug during pregnancy and contributes significantly to low birth weight delivery.[59] Babies with birth defects are at higher risk of being born preterm.[60]
Passive smoking and/or smoking before the pregnancy influences the probability of a preterm birth. The World Health Organization published an international study in March 2014.[61]
Presence of anti-thyroid antibodies is associated with an increased risk preterm birth with an odds ratio of 1.9 and 95% confidence interval of 1.1–3.5.[62]
Intimate violence against the mother is another risk factor for preterm birth.[63]
Physical trauma may case a preterm birth. The Nigerian cultural method of abdominal massage has been shown to result in 19% preterm birth among women in Nigeria, plus many other adverse outcomes for the mother and baby.[64] This ought not be confused with massage therapy conducted by a fully trained and certified/licensed massage therapist or by significant others trained to provide massage during pregnancy, which—in a study involving pregnant females with prenatal depression—has been shown to have numerous positive results during pregnancy, including the reduction of preterm birth, less depression, lower cortisol, and reduced anxiety.[65] In healthy women, however, no effects have been demonstrated in a controlled study.

Infection

The frequency of infection in preterm birth is inversely related to the gestational age. *Mycoplasma genitalium* infection is associated with increased risk of preterm birth, and spontaneous abortion.[66]
Infectious microorganisms can be ascending, hematogenous, iatrogenic by a procedure, or retrograde through the fallopian tubes. From the deciduae they may reach the space between the amnion and chorion, the amniotic fluid, and the fetus. A chorioamnionitis also may lead to sepsis of the mother. Fetal infection is linked to preterm birth and to significant long-term disability including cerebral palsy.[67]
It has been reported that asymptomatic colonization of the decidua occurs in up to 70% of women at term using a DNA probe suggesting that the presence of micro-organism alone may be insufficient to initiate the infectious response.
As the condition is more prevalent in black women in the U.S. and the UK, it has been suggested to be an explanation for the higher rate of preterm birth in these populations. It is opined that bacterial vaginosis before or during pregnancy may affect the decidual inflammatory response that leads to preterm birth. The condition known as aerobic vaginitis can be a serious risk factor for preterm labor; several previous studies failed to acknowledge the difference between aerobic vaginitis and bacterial vaginosis, which may explain some of the contradiction in the results.[68]
Untreated yeast infections are associated with preterm birth.[69]
A review into prophylactic antibiotics (given to prevent infection) in the second and third trimester of pregnancy (13–42 weeks of pregnancy) found a reduction in the number of preterm births in women with bacterial vaginosis. These antibiotics also reduced the number of waters breaking before labor in full-term pregnancies, reduced the risk of infection of the lining of the womb after delivery (endometritis), and rates of gonococcal infection. However, the women without bacterial vaginosis did not have any reduction in preterm births or pre-labor preterm waters breaking. Much of the research included in this review lost participants during follow-up so did not report the long-term effects of the antibiotics on mothers or babies. More research in this area is needed to find the full effects of giving antibiotics throughout the second and third trimesters of pregnancy.[70]
A number of maternal bacterial infections are associated with preterm birth including pyelonephritis, asymptomatic bacteriuria, pneumonia, and appendicitis. A review into giving antibiotics in pregnancy for asymptomatic bacteriuria (urine infection with no symptoms) found the research was of very low quality but that it did suggest that taking antibiotics reduced the numbers of preterm births and babies with low birth weight.[71] Another review found that one dose of antibiotics did not seem as effective as a course of antibiotics but fewer women reported side effects from one dose.[72] This review recommended that more research is needed to discover the best way of treating asymptomatic bacteriuria.[71]
A different review found that preterm births happened less for pregnant women who had routine testing for low genital tract infections than for women who only had testing when they showed symptoms of low genital tract infections.[73] The women being routinely tested also gave birth to fewer babies with a low birth weight. Even though these results look promising, the review was only based on one study so more research is needed into routine screening for low genital tract infections.[73]

Also periodontal disease has been shown repeatedly to be linked to preterm birth.[74][75] In contrast, viral infections, unless accompanied by a significant febrile response, are considered not to be a major factor in relation to preterm birth.[35]

Genetics

There is believed to be a maternal genetic component in preterm birth.[76] Estimated heritability of timing-of-birth in women was 34%. However, the occurrence of preterm birth in families does not follow a clear inheritance pattern, thus supporting the idea that preterm birth is a non-Mendelian trait with a polygenic nature.[77]

Prenatal care

The absence of prenatal care has been associated with higher rates of preterm births. Analysis of 15,627,407 live births in the United States in 1995–1998 concluded that the absence of prenatal care carried a 2.9 (95%CI 2.8, 3.0) times higher risk of preterm births.[30] This same study found statistically significant relative risks of maternal anemia, intrapartum fever, unknown bleeding, renal disease, placental previa, hydramnios, placenta abruption, and pregnancy-induced hypertension with the absence of prenatal care. All these prenatal risks were controlled for other high-risk conditions, maternal age, gravidity, marital status, and maternal education. The absence of prenatal care prior to and during the pregnancy is primarily a function of socioeconomic factors (low family income and education), access to medical consultations (large distance from the place of residence to the healthcare unit and transportation costs), quality of healthcare, and social support.[78] Efforts to decrease rates of preterm birth should aim to increase the deficits posed by the aforementioned barriers and to increase access to prenatal care.

Diagnosis

Placental alpha microglobulin-1

Placental alpha microglobulin-1 (PAMG-1) has been the subject of several investigations evaluating its ability to predict imminent spontaneous preterm birth in women with signs, symptoms, or complaints suggestive of preterm labor.[79][80][81][82][83][84] In one investigation comparing this test to fetal fibronectin testing and cervical length measurement via transvaginal ultrasound, the test for PAMG-1 (commercially known as the PartoSure test) has been reported to be the single best predictor of imminent spontaneous delivery within 7 days of a patient presenting with signs, symptoms, or complaints of preterm labor. Specifically, the PPV, or positive predictive value, of the tests were 76%, 29%, and 30% for PAMG-1, fFN and CL, respectively ($P < 0.01$).[85]

Fetal fibronectin

Fetal fibronectin (fFN) has become an important biomarker—the presence of this glycoprotein in the cervical or vaginal secretions indicates that the border between the chorion and decidua has been disrupted. A positive test indicates an increased risk of preterm birth, and a negative test has a high predictive value.[35] It has been shown that only 1% of women in questionable cases of preterm labor delivered within the next week when the test was negative.[86]

Ultrasound

Obstetric ultrasound has become useful in the assessment of the cervix in women at risk for premature delivery. A short cervix preterm is undesirable: A cervical length of less than 25 mm (0.98 in) at or before 24 weeks of gestational age is the most common definition of cervical incompetence.[87]

Emerging Technologies

Technologies under research and development to facilitate earlier diagnosis of preterm births include sanitary pads that identify biomarkers such as fFN and PAMG-1 and others, when placed into the vagina. These devices then calculate a risk of preterm birth and send the findings to a smartphone.[88] The notion that risk scoring systems are accurate in predicting preterm birth has been debated in multiple literature reviews.[89][90]

Classification

In humans, the usual definition of preterm birth is birth before a gestational age of 37 complete weeks.[91] In the normal human fetus, several organ systems mature between 34 and 37 weeks, and the fetus reaches adequate maturity by the end of this period. One of the main organs greatly affected by premature birth is the lungs. The lungs are one of the last organs to mature in the womb; because of this, many premature babies spend the first days and weeks of their lives on ventilators. Therefore, a significant overlap exists between preterm birth and prematurity. Generally, preterm babies are premature and term babies are mature. Preterm babies born near 37 weeks often have no problems relating to prematurity if their lungs have developed adequate surfactant,

which allows the lungs to remain expanded between breaths. Sequelae of prematurity can be reduced to a small extent by using drugs to accelerate maturation of the fetus, and to a greater extent by preventing preterm birth.

Prevention

Historically efforts have been primarily aimed to improve survival and health of preterm infants (tertiary intervention). Such efforts, however, have not reduced the incidence of preterm birth. Increasingly primary interventions that are directed at all women, and secondary intervention that reduce existing risks are looked upon as measures that need to be developed and implemented to prevent the health problems of premature infants and children.[92] Smoking bans are effective in decreasing preterm births.[93] Different strategies are used in the administration of prenatal care, and future studies need to determine if the focus can be on screening for high-risk women, or widened support for low-risk women, or to what degree these approaches can be merged.[92]

Before pregnancy

Adoption of specific professional policies can immediately reduce risk of preterm birth as the experience in assisted reproduction has shown when the number of embryos during embryo transfer was limited.[92] Many countries have established specific programs to protect pregnant women from hazardous or night-shift work and to provide them with time for prenatal visits and paid pregnancy-leave. The EUROPOP study showed that preterm birth is not related to type of employment, but to prolonged work (over 42 hours per week) or prolonged standing (over 6 hours per day).[94] Also, night work has been linked to preterm birth.[95] Health policies that take these findings into account can be expected to reduce the rate of preterm birth.[92] Preconceptional intake of folic acid is recommended to reduce birth defects. There is also some evidence that folic acid supplement preconceptionally (before becoming pregnant) may reduce premature birth.[96] Reducing smoking is expected to benefit pregnant women and their offspring.[92]

During pregnancy

Self-care methods to reduce the risk of preterm birth include proper nutrition, avoiding stress, seeking appropriate medical care, avoiding infections, and the control of preterm birth risk factors (e.g. working long hours while standing on feet, carbon monoxide exposure, domestic abuse, and other factors).[97] Reducing physical activity during pregnancy has not been shown to reduce the risk of a preterm birth.[98] Healthy eating can be instituted at any stage of the pregnancy including nutritional adjustments and consuming suggested vitamin supplements.[92] Calcium supplementation in women who have low dietary calcium may reduce the number of negative outcomes including preterm birth, pre-eclampsia, and maternal death.[99] The World Health Organization (WHO) suggests 1.5–2 g of calcium supplements daily, for pregnant women who have low levels of calcium in their diet.[100] Supplemental intake of C and E vitamins have not been found to reduce preterm birth rates.[101]

While periodontal infection has been linked with preterm birth, randomized trials have not shown that periodontal care during pregnancy reduces preterm birth rates.[92] Smoking cessation has also been shown to reduce the risk.[102] The use of personal at home uterine monitoring devices to detect contractions and possible preterm births in women at higher risk of having a preterm baby have been suggested.[103] These home monitors may not reduce the number of preterm births, however, using these devices may increase the number of unplanned antenatal visits and may reduce the number of babies admitted to special care when compared with women receiving normal antenatal care.[103] Support from medical professionals, friends, and family during pregnancy may be beneficial at reducing caesarean birth and may reduce prenatal hospital admissions, however, these social supports alone may not prevent preterm birth.[104]

Screening during pregnancy

Screening for asymptomatic bacteriuria followed by appropriate treatment reduces pyelonephritis and reduces the risk of preterm birth.[105] Extensive studies have been carried out to determine if other forms of screening in low-risk women followed by appropriate intervention are beneficial, including screening for and treatment of *Ureaplasma urealyticum*, group B streptococcus, *Trichomonas vaginalis*, and bacterial vaginosis did not reduce the rate of preterm birth.[92] Routine ultrasound examination of the length of the cervix may identify women at risk of preterm labour and tentative evidence suggests ultrasound measurement of the length of the cervix in those with preterm labor can help adjust management and results in the extension of pregnancy by about four days.[106] Screening for the presence of fibronectin in vaginal secretions is not recommended at this time in women at low risk of preterm birth.[*medical citation needed*]

Reducing existing risks

Women are identified to be at increased risk for preterm birth on the basis of their past obstetrical history or the presence of known risk factors. Preconception intervention can be helpful in selected patients in a number of ways. Patients with certain uterine anomalies may have a surgical correction (i.e. removal of a uterine septum), and those with certain medical problems can be helped by optimizing medical therapies prior to conception, be it for asthma, diabetes, hypertension, and others.

Multiple pregnancies

In multiple pregnancies, which often result from use of assisted reproductive technology, there is a high risk of preterm birth. Selective reduction is used to reduce the number of fetuses to two or three.[107][108][109]

Reducing indicated preterm birth

A number of agents have been studied for the secondary prevention of indicated preterm birth. Trials using low-dose aspirin, fish oil, vitamin C and E, and calcium to reduce preeclampsia demonstrated some reduction in preterm birth only when low-dose aspirin was used.[92] Even if agents such as calcium or antioxidants were able to reduce preeclampsia, a resulting decrease in preterm birth was not observed.[92]

Reducing spontaneous preterm birth

Reduction in activity by the mother—pelvic rest, limited work, bed rest—may be recommended although there is no evidence it is useful with some concerns it is harmful.[110] Increasing medical care by more frequent visits and more education has not been shown to reduce preterm birth rates.[104] Use of nutritional supplements such as omega-3 polyunsaturated fatty acids is based on the observation that populations who have a high intake of such agents are at low risk for preterm birth, presumably as these agents inhibit production of proinflammatory cytokines. A randomized trial showed a significant decline in preterm birth rates,[111] and further studies are in the making.

Antibiotics

While antibiotics can get rid of bacterial vaginosis in pregnancy, this does not appear to change the risk of preterm birth.[112] It has been suggested that chronic chorioamnionitis is not sufficiently treated by antibiotics alone (and therefore they cannot ameliorate the need for preterm delivery in this condition).[92]

Progestogens

Progestogens—often given in the form of vaginal[113] progesterone or hydroxyprogesterone caproate—relax the uterine musculature, maintain cervical length, and possess anti-inflammatory properties; all of which invoke physiological and anatomical changes considered to be beneficial in reducing preterm birth. Two meta-analyses demonstrated a reduction in the risk of preterm birth in women with recurrent preterm birth by 40–55%.[114][115] Progestogen supplementation also reduces the frequency of preterm birth in pregnancies where there is a short cervix.[116] A short cervix is one that is less than 25mm, as detected during a transvaginal cervical length assessment in the midtrimester.[117] However, progestogens are not effective in all populations, as a study involving twin gestations failed to see any benefit.[118] Despite extensive research related to progestogen effectiveness, uncertainties remain concerning types of progesterone and routes of administration.[119]

Cervical cerclage

In preparation for childbirth, the woman's cervix shortens. Preterm cervical shortening is linked to preterm birth and can be detected by ultrasonography. Cervical cerclage is a surgical intervention that places a suture around the cervix to prevent its shortening and widening. Numerous studies have been performed to assess the value of cervical cerclage and the procedure appears helpful primarily for women with a short cervix and a history of preterm birth.[116][120] Instead of a prophylactic cerclage, women at risk can be monitored during pregnancy by sonography, and when shortening of the cervix is observed, the cerclage can be performed.[92]

Treatment

Tertiary interventions are aimed at women who are about to go into preterm labor, or rupture the membranes or bleed preterm. The use of the fibronectin test and ultrasonography improves the diagnostic accuracy and reduces false-positive diagnosis. While treatments to arrest early labor where there is progressive cervical dilatation and effacement will not be effective to gain sufficient time to allow the fetus to grow and mature further, it may defer delivery sufficiently to allow the mother to be brought to a specialized center that is equipped and staffed to handle preterm deliveries.[121] In a hospital setting women are hydrated via intravenous infusion (as dehydration can lead to premature uterine contractions).[122]

If a baby has cardiac arrest at birth and is less than 22 to 24 weeks gestational age, attempts at resuscitation are not generally indicated.[123]

Steroids

Severely premature infants may have underdeveloped lungs because they are not yet producing their own surfactant. This can lead directly to respiratory distress syndrome, also called hyaline membrane disease, in the neonate. To try to reduce the risk of this outcome, pregnant mothers with threatened premature delivery prior to 34 weeks are often administered at least one course of glucocorticoids, an antenatal steroid that crosses the placental barrier and stimulates the production of surfactant in the lungs of the baby.[16] Steroid use up to 37 weeks is also recommended by the American Congress of Obstetricians and Gynecologists.[16] Typical glucocorticoids that would be administered in this context are betamethasone or dexamethasone, often when the pregnancy has reached viability at 23 weeks.[*citation needed*]

In cases where premature birth is imminent, a second "rescue" course of steroids may be administered 12 to 24 hours before the anticipated birth. There are still some concerns about the efficacy and side effects of a second course of steroids, but the consequences of RDS are so severe that a second course is often viewed as worth the risk. A 2015 Cochrane review (updated in 2022) supports the use of repeat dose(s) of prenatal corticosteroids for women still at risk of preterm birth seven days or more after an initial course.[124]

A Cochrane review from 2020 recommends the use of a single course of antenatal corticosteroids to accelerate fetal lung maturation in women at risk of preterm birth. Treatment with antenatal corticosteroids reduces the risk of perinatal death, neonatal death and respiratory distress syndrome and probably reduces the risk of IVH.[125]

Concerns about adverse effects of prenatal corticosteroids include increased risk for maternal infection, difficulty with diabetic control, and possible long-term effects on neurodevelopmental outcomes for the infants. There is ongoing discussion about when steroids should be given (i.e. only antenatally or postnatally too) and for how long (i.e. single course or repeated administration). Despite these unknowns, there is a consensus that the benefits of a single course of prenatal glucocorticosteroids vastly outweigh the potential risks.[126][127][128]

Antibiotics

The routine administration of antibiotics to all women with threatened preterm labor reduces the risk of the baby being infected with group B streptococcus and has been shown to reduce related mortality rates.[129]

When membranes rupture prematurely, obstetrical management looks for development of labor and signs of infection. Prophylactic antibiotic administration has been shown to prolong pregnancy and reduced neonatal morbidity with rupture of membranes at less than 34 weeks.[130] Because of concern about necrotizing enterocolitis, amoxicillin or erythromycin has been recommended but not amoxicillin + clavulanic acid (co-amoxiclav).[130]

Tocolysis

A number of medications may be useful to delay delivery including: nonsteroidal anti-inflammatory drugs, calcium channel blockers, beta mimetics, and atosiban.[131] Tocolysis rarely delays delivery beyond 24–48 hours.[132] This delay, however, may be sufficient to allow the pregnant woman to be transferred to a center specialized for management of preterm deliveries and give administered corticosteroids to reduce neonatal organ immaturity. Meta-analyses indicate that calcium-channel blockers and an oxytocin antagonist can delay delivery by 2–7 days, and β2-agonist drugs delay by 48 hours but carry more side effects.[92][133] Magnesium sulfate does not appear to be useful to prevent preterm birth.[134] Its use before delivery, however, does appear to decrease the risk of cerebral palsy.[135]

Mode of delivery

The routine use of caesarean section for early delivery of infants expected to have very low birth weight is controversial,[136] and a decision concerning the route and time of delivery probably needs to be made on a case-by-case basis.

Neonatal care

In developed countries premature infants are usually cared for in a neonatal intensive care unit (NICU). The physicians who specialize in the care of very sick or premature babies are known as neonatologists. In the NICU, premature babies are kept under radiant warmers or in incubators (also called isolettes), which are bassinets enclosed in plastic with climate control equipment designed to keep them warm and limit their exposure to germs. Modern neonatal intensive care involves sophisticated measurement of temperature,

respiration, cardiac function, oxygenation, and brain activity. After delivery, plastic wraps or warm mattresses are useful to keep the infant warm on their way to the NICU.[137] Treatments may include fluids and nutrition through intravenous catheters, oxygen supplementation, mechanical ventilation support, and medications.[138] In developing countries where advanced equipment and even electricity may not be available or reliable, simple measures such as *kangaroo care* (skin to skin warming), encouraging breastfeeding, and basic infection control measures can significantly reduce preterm morbidity and mortality. Kangaroo mother care (KMC) can decrease the risk of neonatal sepsis, hypothermia, hypoglycemia and increase exclusive breastfeeding.[139] Bili lights may also be used to treat newborn jaundice (hyperbilirubinemia).
Water can be carefully provided to prevent dehydration but not so much to increase risks of side effects.[140]

Breathing support

In terms of respiratory support, there may be little or no difference in the risk of death or chronic lung disease between high flow nasal cannulae (HFNC) and continuous positive airway pressure (CPAP) or nasal intermittent positive pressure ventilation (NPPV).[141] For extremely preterm babies (born before 28 weeks' gestation), targeting a higher versus a lower oxygen saturation range makes little or no difference overall to the risk of death or major disability.[142] Babies born before 32 weeks have been shown to have a lower risk of death from bronchopulmonary dysplasia if they have CPAP immediately after being born, compared to receiving either supportive care or assisted ventilation.[143]
There is insufficient evidence for or against placing preterm stable twins in the same cot or incubator (co-bedding).[144]

Nutrition

Meeting the appropriate nutritional needs of preterm infants is important for long-term health. Optimal care may require a balance of meeting nutritional needs and preventing complications related to feeding. The ideal growth rate is not known, however, preterm infants usually require a higher energy intake compared to babies who are born at term.[145] The recommended amount of milk is often prescribed based on approximated nutritional requirements of a similar aged fetus who is not compromised.[146] An immature gastrointestinal tract (GI tract), medical conditions (or co-morbidities), risk of aspirating milk, and necrotizing enterocolitis may lead to difficulties in meeting this high nutritional demand and many preterm infants have nutritional deficits that may result in growth restrictions.[146] In addition, very small preterm infants cannot coordinate sucking, swallowing, and breathing.[147] Tolerating a full enteral feeding (the prescribed volume of milk or formula) is a priority in neonatal care as this reduces the risks associated with venous catheters including infection, and may reduce the length of time the infant requires specialized care in the hospital.[146] Different strategies can be used to optimize feeding for preterm infants. The type of milk/formula and fortifiers, route of administration (by mouth, tube feeding, venous catheter), timing of feeding, quantity of milk, continuous or intermittent feeding, and managing gastric residuals are all considered by the neonatal care team when optimizing care. The evidence in the form of high-quality randomized trials is generally fairly weak in this area, and for this reason different neonatal intensive care units may have different practices and this results in a fairly large variation in practice. The care of preterm infants also varies in different countries and depends on resources that are available.[146]

Human breast milk and formula

The American Academy of Pediatrics recommended feeding preterm infants human milk, finding "significant short- and long-term beneficial effects," including lower rates of necrotizing enterocolitis (NEC).[148] In the absence of evidence from randomised controlled trials about the effects of feeding preterm infants with formula compared with mother's own breast milk, data collected from other types of studies suggest that mother's own breast milk is likely to have advantages over formula in terms of the baby's growth and development.[149][145] A recent (2019) large review of evidence suggests that feeding preterm infants with formula rather than donor breast milk is associated with faster rates of growth, but with a near-doubling of the risk of developing NEC.[150]

Fortified human breast milk and preterm/term formula

Breast milk or formula alone may not be sufficient to meet the nutritional needs of some preterm infants. Fortification of breast milk or formula by adding extra nutrients is an approach often taken for feeding preterm infants, with the goal of meeting the high nutritional demand.[145] High quality randomized controlled trials are needed in this field to determine the effectiveness of fortification.[151] It is unclear if fortification of breast milk improves outcomes in preterm babies, though it may speed growth.[151] Supplementing human milk with extra protein may increase short-term growth but the longer-term effects on body composition, growth and brain

development are uncertain.[152][153] Higher protein formula (between 3 and 4 grams of protein per kilo of body weight) may be more effective than low protein formula (less than 3 grams per kilo per day) for weight gain in formula-fed low-birth-weight infants.[154] There is insufficient evidence about the effect on preterm babies' growth of supplementing human milk with carbohydrate,[155] fat,[156][157] and branched-chain amino acids.[158] Conversely, there is some indication that preterm babies who cannot breastfeed may do better if they are fed only with diluted formula compared to full strength formula but the clinical trial evidence remains uncertain.[159]

Individualizing the nutrients and quantities used to fortify enteral milk feeds in infants born with very low birth weight may lead to better short-term weight gain and growth but the evidence is uncertain for longer term outcomes and for the risk of serious illness and death.[160] This includes targeted fortification (adjusting the level of nutrients in response to the results of a test on the breast milk) and adjustable fortification (adding nutrients based on testing the infant).[160]

Multi-nutrient fortifier used to fortify human milk and formula has traditionally been derived from bovine milk.[161] Fortifier derived from humans is available, however, the evidence from clinical trials is uncertain and it is not clear if there are any differences between human-derived fortifier and bovine-derived fortifier in terms of neonatal weight gain, feeding intolerance, infections, or the risk of death.[161]

Timing of feeds

For very preterm infants, most neonatal care centres start milk feeds gradually, rather than starting with a full enteral feeding right away, however, is not clear if starting full enteral feeding early effects the risk of necrotising enterocolitis.[146] In these cases, the preterm infant would be receiving the majority of their nutrition and fluids intravenously. The milk volume is usually gradually increased over the following weeks.[146] Research into the ideal timing of enteral feeding and whether delaying enteral feeding or gradually introducing enteral feeds is beneficial at improving growth for preterm infants or low birth weight infants is needed.[146] In addition, the ideal timing of enteral feeds to prevent side effects such as necrotising enterocolitis or mortality in preterm infants who require a packed red blood cell transfusion is not clear.[162] Potential disadvantages of a more gradual approach to feeding preterm infants associated with less milk in the gut and include slower GI tract secretion of hormones and gut motility and slower microbial colonization of the gut.[146]

Regarding the timing of starting fortified milk, preterm infants are often started on fortified milk/formula once they are fed 100 mL/kg of their body weight. Other some neonatal specialists feel that starting to feed a preterm infant fortified milk earlier is beneficial to improve intake of nutrients.[163] The risks of feeding intolerance and necrotising enterocolitis related to early versus later fortification of human milk are not clear.[163] Once the infant is able to go home from the hospital there is limited evidence to support prescribing a preterm (fortified) formula.[164]

Intermittent feeding versus continuous feeding

For infants who weigh less than 1500 grams, tube feeding is usually necessary.[147] Most often, neonatal specialists feed preterm babies intermittently with a prescribed amount of milk over a short period of time. For example, a feed could last 10–20 minutes and be given every 3 hours. This intermittent approach is meant to mimic conditions of normal bodily functions involved with feeding and allow for a cyclic pattern in the release of gastrointestinal tract hormones to promote development of the gastrointestinal system.[147] In certain cases, continuous nasogastric feeding is sometimes preferred. There is low to very low certainty evidence to suggest that low birth weight babies who receive continuous nasogastic feeding may reach the benchmark of tolerating full enteral feeding later than babies fed intermittently and it is not clear if continuous feeding has any effect on weight gain or the number of interruptions in feedings.[147] Continuous feeding may have little to no effect on length of body growth or head circumference and the effects of continuous feeding on the risk of developing necrotising enterocolitis is not clear.[147]

Since preterm infants with gastro-oesophageal reflux disease do not have a fully developed antireflux mechanism, deciding on the most effective approach for nutrition is important. It is not clear if continuous bolus intragastric tube feeding is more effective compared to intermittent bolus intragastric tube feeding for feeding preterm infants with gastroesophageal reflux disease.[165]

For infants who would benefit from intermittent bolus feeding, some infants may be fed using the "push feed" method using a syringe to gently push the milk or formula into the stomach of the infant. Others may be fed using a gravity feeding system where the syringe is attached directly to a tube and the milk or formula drips into

the infant's stomach. It is not clear from medical studies which approach to intermittent bolus feeding is more effective or reduces adverse effects such as apnea, bradycardia, or oxygen desaturation episodes.[166][167]

High volume feeds

High-volume (more than 180 mL per kilogram per day) enteral feeds of fortified or non-fortified human breast milk or formula may improve weight gain while the pre-term infant is hospitalized, however, there is insufficient evidence to determine if this approach improves growth of the neonate and other clinical outcomes including length of hospital stay.[145] The risks or adverse effects associated with high-volume enteral feeding of preterm infants including aspiration pneumonia, reflux, apnea, and sudden oxygen desaturation episodes have not been reported in the trials considered in a 2021 systematic review.[145]

Parenteral (intraveneous) nutrition

For preterm infants who are born after 34 weeks of gestation ("late preterm infants") who are critically ill and cannot tolerate milk, there is some weak evidence that the infant may benefit from including amino acids and fats in the intravenous nutrition at a later time point (72 hours or longer from hospital admission) versus early (less than 72 hours from admission to hospital), however further research is required to understand the ideal timing of starting intravenous nutrition.[168]

Gastric residuals

For preterm infants in neonatal intensive care on gavage feeds, monitoring the volume and colour of gastric residuals, the milk and gastrointestinal secretions that remain in the stomach after a set amount of time, is common standard of care practice.[169] Gastric residual often contains gastric acid, hormones, enzymes, and other substances that may help improve digestion and mobility of the gastrointestinal tract.[169] Analysis of gastric residuals may help guide timing of feeds.[169] Increased gastric residual may indicate feeding intolerance or it may be an early sign of necrotizing enterocolitis.[169] Increased gastric residual may be caused by an underdeveloped gastrointestinal system that leads to slower gastric emptying or movement of the milk in the intestinal tract, reduced hormone or enzyme secretions from the gastrointestinal tract, duodenogastric reflux, formula, medications, and/or illness.[169] The clinical decision to discard the gastric residuals (versus re-feeding) is often individualized based on the quantity and quality of the residual.[169] Some experts also suggest replacing the fresh milk or curded milk and bile-stained aspirates, but not replacing haemorrhagic residual.[169] Evidence to support or refute the practice of re-feeding preterm infants with gastric residuals is lacking.[169]

Hyponatraemia and hypernatraemia

Imbalances of sodium (hyponatraemia and hypernatraemia) are common in babies born preterm.[170] Hypernatraemia (sodium levels in the serum of more than 145-150 mmol/L) is common early on in preterm babies and the risk of hyponatraemia (sodium levels of less than 135 nmol/L) increases after about a week of birth if left untreated and prevention approaches are not used.[170] Preventing complications associated with sodium imbalances is part of standard of care for preterm infants and includes careful monitoring of water and sodium given to the infant.[170] The optimal sodium dose given immediately after birth (first day) is not clear and further research is needed to understand the idea management approach.[170]

Hearing assessment

The Joint Committee on Infant Hearing (JCIH) state that for preterm infants who are in the neonatal intensive care unit (NICU) for a prolonged time should have a diagnostic audiologic evaluation before they are discharged from the hospital.[171] Well babies follow a 1-2-3-month benchmark timeline where they are screened, diagnosed, and receiving intervention for a hearing loss. However, very premature babies it might not be possible to complete a hearing screen at one month of age due to several factors. Once the baby is stable an audiologic evaluation should be performed. For premature babies in the NICU, auditory brainstem response (ABR) testing is recommended. If the infant does not pass the screen, they should be referred for an audiologic evaluation by an audiologist.[171] If the infant is on aminoglycosides such as gentamicin for less than five days they should be monitored and have a follow-up 6–7 months of being discharged from the hospital to ensure there is no late onset hearing loss due to the medication.[171]

Outcomes and prognosis

Preterm births can result in a range of problems including mortality and physical and mental delays.[178][179]

Mortality and morbidity

In the U.S. where many neonatal infections and other causes of neonatal death have been markedly reduced, prematurity is the leading cause of neonatal mortality at 25%.[180] Prematurely born infants are also at greater risk for having subsequent serious chronic health problems as discussed below.

The earliest gestational age at which the infant has at least a 50% chance of survival is referred to as the limit of viability. As NICU care has improved over the last 40 years, the limit of viability has reduced to approximately 24 weeks.[181][182] Most newborns who die, and 40% of older infants who die, were born between 20 and 25.9 weeks (gestational age), during the second trimester.[21]

As risk of brain damage and developmental delay is significant at that threshold even if the infant survives, there are ethical controversies over the aggressiveness of the care rendered to such infants. The limit of viability has also become a factor in the abortion debate.[183]

Specific risks for the preterm neonate

Preterm infants usually show physical signs of prematurity in reverse proportion to the gestational age. As a result, they are at risk for numerous medical problems affecting different organ systems.

- Neurological problems can include apnea of prematurity, hypoxic-ischemic encephalopathy (HIE), retinopathy of prematurity (ROP),[184] developmental disability, transient hyperammonemia, cerebral palsy, and intraventricular hemorrhage, the latter affecting 25% of babies born preterm, usually before 32 weeks of pregnancy.[185] Mild brain bleeds usually leave no or few lasting complications, but severe bleeds often result in brain damage or even death.[185] Neurodevelopmental problems have been linked to lack of maternal thyroid hormones, at a time when their own thyroid is unable to meet postnatal needs.[186]
- Cardiovascular complications may arise from the failure of the ductus arteriosus to close after birth: patent ductus arteriosus (PDA).
- Respiratory problems are common, specifically the respiratory distress syndrome (RDS or IRDS) (previously called hyaline membrane disease). Another problem can be chronic lung disease (previously called bronchopulmonary dysplasia or BPD).
- Gastrointestinal and metabolic issues can arise from neonatal hypoglycemia, feeding difficulties, rickets of prematurity, hypocalcemia, inguinal hernia, and necrotizing enterocolitis (NEC).
- Hematologic complications include anemia of prematurity, thrombocytopenia, and hyperbilirubinemia (jaundice) that can lead to kernicterus.
- Infection, including sepsis, pneumonia, and urinary tract infection [1]

Survival

The chance of survival at 22 weeks is about 6%, while at 23 weeks it is 26%, 24 weeks 55% and 25 weeks about 72% as of 2016.[23] With extensive treatment up to 30% of those who survive birth at 22 weeks survive longer term as of 2019.[187] The chances of survival without long-term difficulties is less.[24] Of those who survive following birth at 22 weeks 33% have severe disabilities.[187] In the developed world, overall survival is about 90% while in low-income countries survival rates are about 10%.[188]

Some children will adjust well during childhood and adolescence,[178] although disability is more likely nearer the limits of viability. A large study followed children born between 22 and 25 weeks until the age of 6 years old. Of these children, 46% had moderate to severe disabilities such as cerebral palsy, vision or hearing loss and learning disabilities, 34% had mild disabilities, and 20% had no disabilities; 12% had disabling cerebral palsy.[189] Up to 15% of premature infants have significant hearing loss.[190]

As survival has improved, the focus of interventions directed at the newborn has shifted to reduce long-term disabilities, particularly those related to brain injury.[178] Some of the complications related to prematurity may not be apparent until years after the birth. A long-term study demonstrated that the risks of medical and social disabilities extend into adulthood and are higher with decreasing gestational age at birth and include cerebral palsy, intellectual disability, disorders of psychological development, behavior, and emotion, disabilities of vision and hearing, and epilepsy.[191] Standard intelligence tests showed that 41% of children born between 22 and 25 weeks had moderate or severe learning disabilities when compared to the test scores of a group of similar classmates who were born at full term.[189] It is also shown that higher levels of education were less likely to be obtained with decreasing gestational age at birth.[191] People born prematurely may be more susceptible to developing depression as teenagers.[192] Some of these problems can be described as being within the executive domain and have been speculated to arise due to decreased myelinization of the frontal

lobes.[193] Studies of people born premature and investigated later with MRI brain imaging, demonstrate qualitative anomalies of brain structure and grey matter deficits within temporal lobe structures and the cerebellum that persist into adolescence.[194] Throughout life they are more likely to require services provided by physical therapists, occupational therapists, or speech therapists.[178] They are more likely to develop type 1 diabetes (roughly 1.2 times the rate) and type 2 diabetes (1.5 times).[195]

Despite the neurosensory, mental and educational problems studied in school age and adolescent children born extremely preterm, the majority of preterm survivors born during the early years of neonatal intensive care are found to do well and to live fairly normal lives in young adulthood.[196] Young adults born preterm seem to acknowledge that they have more health problems than their peers, yet feel the same degree of satisfaction with their quality of life.[197]

Beyond the neurodevelopmental consequences of prematurity, infants born preterm have a greater risk for many other health problems. For instance, children born prematurely have an increased risk for developing chronic kidney disease.[198]

Epidemiology

Preterm birth complicates 5–18% of births worldwide.[69] In Europe and many developed countries the preterm birth rate is generally 5–9%,[200] while in the U.S. from 2007 to 2022 the rate fluctuated from 9.6 to 10.5 per cent.[201]

As weight is easier to determine than gestational age, the World Health Organization tracks rates of low birth weight (< 2,500 grams), which occurred in 16.5% of births in less developed regions in 2000.[202] It is estimated that one third of these low birth weight deliveries are due to preterm delivery. Weight generally correlates to gestational age; however, infants may underweight for other reasons than a preterm delivery. Neonates of low birth weight (LBW) have a birth weight of less than 2,500 g (5 lb 8 oz) and are mostly but not exclusively preterm babies as they also include *small for gestational age* (SGA) babies. Weight-based classification further recognizes *Very Low Birth Weight* (VLBW) which is less than 1,500 g, and *Extremely Low Birth Weight* (ELBW) which is less than 1,000 g.[203] Almost all neonates in these latter two groups are born preterm.

About 75% of nearly a million deaths due to preterm delivery would survive if provided warmth, breastfeeding, treatments for infection, and breathing support.[188] Complications from preterm births resulted in 740,000 deaths in 2013, down from 1.57 million in 1990.[22]

Society and culture

Economics

Preterm birth is a significant cost factor in healthcare, not even considering the expenses of long-term care for individuals with disabilities due to preterm birth. A 2003 study in the U.S. determined neonatal costs to be $224,400 for a newborn at 500–700 g versus $1,000 at over 3,000 g. The costs increase exponentially with decreasing gestational age and weight.[204] The 2007 Institute of Medicine report *Preterm Birth*[205] found that the 550,000 premature babies born each year in the U.S. run up about $26 billion in annual costs, mostly related to care in neonatal intensive care units, but the real tab may top $50 billion.[206]

Notable cases

James Elgin Gill (born on 20 May 1987 in Ottawa, Ontario, Canada) was the earliest premature baby in the world, until that record was broken in 2004. He was 128 days premature, 21 weeks 5 days gestation, and weighed 624 g (1 lb 6 oz). He survived.[207][208]

In 2014, Lyla Stensrud, born in San Antonio, Texas, U.S., became the youngest premature baby in the world. She was born at 21 weeks 4 days and weighed 410 grams (less than a pound). Kaashif Ahmad resuscitated the baby after she was born. As of November 2018, Lyla was attending preschool. She had a slight delay in speech, but no other known medical issues or disabilities.[209]

Amillia Taylor is also often cited as the most premature baby.[210] She was born on 24 October 2006 in Miami, Florida, U.S., at 21 weeks and 6 days' gestation.[211] This report has created some confusion as her gestation was measured from the date of conception (through *in vitro* fertilization) rather than the date of her mother's last menstrual period, making her appear 2 weeks younger than if gestation was calculated by the more common method. At birth, she was 23 cm (9 in) long and weighed 280 g (10 oz).[210] She had digestive and respiratory problems, together with a brain hemorrhage. She was discharged from the Baptist Children's Hospital on 20 February 2007.[210]

The record for the smallest premature baby to survive was held for a considerable amount of time by Madeline Mann, who was born in 1989 at 26 weeks, weighing 280.0 g (9.875 oz) and measuring 24 cm (9.5 in) long.[212] This record was broken in September 2004 by Rumaisa Rahman, who was born in the same hospital, Loyola University Medical Center in Maywood, Illinois.[213] at 25 weeks' gestation. At birth, she was 20 cm (8 in) long and weighed 261 g (9.2 oz).[214] Her twin sister was also a small baby, weighing 563 g (1 lb 3.9 oz) at birth. During pregnancy their mother had pre-eclampsia, requiring birth by caesarean section. The larger twin left the hospital at the end of December, while the smaller remained there until 10 February 2005 by which time her weight had increased to 1.18 kg (2 lb 10 oz).[215] Generally healthy, the twins had to undergo laser eye surgery to correct vision problems, a common occurrence among premature babies.

In May 2019, Sharp Mary Birch Hospital for Women & Newborns in San Diego announced that a baby nicknamed "Saybie" had been discharged almost five months after being born at 23 weeks' gestation and weighing 244 g (8.6 oz). Saybie was confirmed by Dr. Edward Bell of the University of Iowa, which keeps the Tiniest Babies Registry, to be the new smallest surviving premature baby in that registry.[216]

Born in February 2009, at Children's Hospitals and Clinics of Minnesota, Jonathon Whitehill was just 25 weeks' gestation with a weight of 310 g (11 oz). He was hospitalized in a neonatal intensive care unit for five months, and then discharged.[217]

Richard Hutchinson was born at Children's Hospitals and Clinics of Minnesota in Minneapolis, Minnesota, on June 5, 2020, at 21 weeks 2 days gestation. At birth he weighed 340 g (12 oz). He remained hospitalized until November 2020, when he was then discharged.[218][219]

On 5 July 2020 Curtis Means was born at the University of Alabama at Birmingham hospital at 21 weeks 1 day, and weighed 420 g (15 oz). He was discharged in April 2021. As of March 2023, he is the current world record holder.[220]

Historical figures who were born prematurely include Johannes Kepler (born in 1571 at seven months' gestation), Isaac Newton (born in 1642, small enough to fit into a quart mug, according to his mother), Winston Churchill (born in 1874 at seven months' gestation), and Anna Pavlova (born in 1885 at seven months' gestation).[221]

Effect of the coronavirus pandemic

During the COVID-19 pandemic, a drastic drop in the rate of premature births has been reported in many countries, ranging from a 20% reduction to a 90% drop in the starkest cases. Studies in Ireland and Denmark first noticed the phenomenon, and it has been confirmed elsewhere. There is no universally accepted explanation for this drop as of August 2020. Hypotheses include additional rest and support for expectant mothers staying at home, less air pollution due to shutdowns and reduced car fumes, and reduced likelihood of catching other diseases and viruses in general due to the lockdowns.[222]

Research

Brain injury is common among preterms, ranging from white matter injury to intraventricular and cerebellar haemorrhages.[223] The characteristic neuropathology of preterms has been described as the "encephalopathy of prematurity".[224] The number of preterms that receive special education is doubled compared to the general population. School marks are lower and so are verbal learning, executive function, language skills, and memory performance scores,[225][226][227][228] as well as IQ scores.[226][228][229][230][231][232][233] Behaviourally, adolescents who were born very preterm and/or very low birth weight have similar self-reports of quality of life, health status and self-esteem as term controls.[234][235][236][237]

Various structural magnetic resonance studies found consistent reductions in whole brain volume.[228][229][231][232][238] The extensive list of particular regions with smaller volumes compared to controls includes many cortical areas (temporal, frontal, parietal, occipital and cingulate), the hippocampal regions, thalamus, basal ganglia, amygdala, brain stem, internal capsule, corpus callosum, and cerebellum. Brain volume reduction seems to be present throughout the whole brain. In contrast, larger volumes were found in some of the same areas including medial/anterior frontal, parietal and temporal cortex, cerebellum, middle temporal gyrus, parahippocampal gyrus, and fusiform gyrus, as well as larger lateral ventricles on average.[239] The cause of these inconsistencies are unknown. Additionally, reductions in cortical surface area/cortical thickness were found in the temporal lobes bilaterally and in left frontal and parietal areas.[230][240] Thicker cortex was found bilaterally in the medial inferior and anterior parts of the frontal lobes and in the occipital lobes. Gestational age was positively correlated with volumes of the temporal and fusiform

gyri and sensorimotor cortex bilaterally, left inferior parietal lobule, brain stem, and various white matter tracts, as well as specific positive associations with the cerebellum and thalamus. Several structural brain alterations have been linked back to cognitive and behavioural outcome measures. For example, total brain tissue volume explained between 20 and 40% of the IQ and educational outcome differences between extremely preterm born adolescents and control adolescents.[231][232] In another study, a 25% quartile decrease in white matter values in middle temporal gyrus was associated with a 60% increase in the risk of cognitive impairment.[225] Nosarti and colleagues previously hypothesised that maturational patterns in preterm brains were consistent with the age-related stages typically observed in younger subjects. Their most recent study suggests, however, that their trajectory may not only be delayed but also fundamentally distinctive. Since both smaller and larger regional volumes were found in very preterm individuals compared to controls.[226]
The evidence to support the use of osteopathic manipulations to provide benefit in neonatal care is weak.[241][242]

Yorum

Prematüre Doğumlar: Doğada her tür için olgunlaşmamış organ sistemleri, her zaman bir beklenen bir durumdur. Meyve ekşi olur ve yenilmez, kısaca işlevini yerine tam getiremez. İnsan için ise yaşayamaz, çünkü organ sistemleri olgunlaşmamıştır. Bunun ötesinde yaşatılması ile olgunlaşma tamamlanmadığı için özürlü olması ötesinde birçok sorun kapıyı çalacaktır. Tek yapılması gereken doğduktan sonra da gelişimini tamamlama imkânı tanınmasıdır. Kısaca bir insanın oluşması için 280 gün, 40 hafta gerekiyorsa, erken doğmalarda bu sürece kadar gelişimin ve ilerlemenin sağlanması gerekir. Sadece yaşatma değil, diğer organ sistemlerinin de gelişimini tamamlanması sağlanmalıdır. 38 Haftada bile bazı boyutlar gelişmediği için prematüre değil, sınırda prematüre şeklinde ele alınır, ısıtılması, beslenmesine özel dikkat ve itina gösterilmelidir.

Doğumların %5-18'i prematüre doğumlardır. %75 oranında geç preterm denilmekte, ancak bu gebelik takibi yapılanlar için söz konusudur. Yaşama oranı olarak 22 Gebelik Haftası için %6 verilirken, 23 Gebelik Haftasında %26, 24 Gebelik Haftasına %55, 25 Gebelik Hafta üzerinde de %72 olarak belirtilmektedir**.**

NOT: Bu oranlar gerçek rakamlar değildir. Çünkü anomaliler katılmadığı, ayrıca bir hafta içinde ventilatörden çıkmayanlarda katılmamaktadır. Kısaca futile treatment kapasına alınarak çıkarılmaktadır. Bu nedenle bu oranlar ülkemiz rakamları ile kıyaslanmamalıdır.

NEONATOLOJİ AÇISINDAN: Tüm amaç özellikle prematüre üzerinde yoğunlaşan bir Bilim Dalı olmaktadır.

Makalede gebelik haftalarına göre ayırım gözlenmektedir. Bu farklılığı akciğer olgunlaşma boyutu tayin etmektedir. Bu açıdan akciğerin olgunlaşması da irdelenmelidir.

- 28 Gebelik Haftasından küçük olması: Burada olgunlaşmama boyutu ile surfaktan yetersizliği önemlidir. Bu açıdan tam doz surfaktan yapılmalı ve ayrıca yapım da yetersiz olduğu için günlük takviye de gerekli olmaktadır. Akciğerin havalanması için açılması, nefes alması sorunlu olduğu için pozitif basınç verilmelidir. Oksijen alveoldeki geçişi arttırıp sıvı toplanmasına, plazma sızmasına neden olabilecektir. Bu açıdan tam %100 oksijen değil, oda havası ve basınç ayarlamalı yapmalıdır. Bu haftalarca süren bir çaba olacaktır.
- 28-32 Gebelik Haftasında olması: Bu yapıda olgunlaşmanın hızlandırılması değil, ama adaptasyonu yapılabilmektedir. Bu açıdan bazı prematürelerde çok geri iken, bazı olgularda daha uyumlu olabilmektedir.

- 32-34 Gebelik Haftasında olması: Tam ufak prematüre yaklaşımıdır. Özellikle doğumun geciktirilmesi ile akciğer olgunlaşması steroid uygulaması ile olanaklı olabilmektedir.
- 34-37 Gebelik Haftasında olması: Tam başarı sağlanabilen bir olgulardır. Bu açıdan ilk planda bunlarda elde edilen yaklaşım daha sonra teknoloji ile daha ufaklara yönlenmesi ile Neonatoloji Bilim Dalı gelişmiştir.
- 38 Gebelik Haftasında olması: Makalede bu gruptan söz etmemektedir. Bu sınırda prematüre denilebilir, bunlar zaten gebelikte sorun varsa, sorunlar oluşabilir. Bahse konu edilmesi, sağlıklı olarak değil bir gün sıkı izlem ile oluşacak sorunların önüne geçilmesi açısından öne çıkmaktadır.

Prematüre Nedenleri: Birçok nedeni olması doğaldır. Bu Makalede tartışılmayacak sadece referans sunulacaktır.

Gebelik İzlemi: Prenatal bakım uygulanmayanlarda Amerika'da 2.9 kat fazla prematürelik görüldüğü, istatistik verisi olarak belirtilmektedir.

Erken Tanımlanması: Gebeliğin prematüre olarak sonlandığına dair verile dikkatlice irdelenirse, önlenebilirse normal süreçte doğum olur, olamıyorsa da kortizon ile surfaktan yapımı ve sağlıklı doğması sağlanabilir. Bazı durumlarda sezaryen ölmemesi için gerekebilir.

Prematüre Tedavisi: Bu makale bu konuda konuyu gündemine almamaktadır. Sadece ölüm tanımlanmadan, ölebilecek algısı veya yaşamanın anlamsızlığı gibi bazı etik ilkeler adı altında ileri sürülenlere itibar etmemelidir. Ülkemizde tümü kasıtlı cinayet kapsamında suçtur. Kanıtlı ve savunma olanağı da olamaz. Ailenin isteği geçerli değildir, suçu talep eden kişiye olur veya uygulayan doğrudan da suçludur.

NEONATOLOJİ AÇISINDAN: İnsan sağlığında ekonomik gerekçeler olamaz. Devlet tüm ekonomik masrafları karşılamak ile yükümlüdür. Özel tıbbi yaklaşımlarda, kişi sadece konfor payını ödeyebilir. Rakamlar her bireye, her olguya göredir, genel oran emsal alınamaz. Tıbbi değerlendirme her hafta Perinatoloji ile Birlikte yapılmalı, Etik Anabilim Dalı, Patoloji gibi bazı Bilim Dalları ile yapılan irdelemeler önemlidir. Eksiklikler malzeme ise tamamlanmalı, bu süreçte ise sevk gündeme gelmelidir. Sertifikasyon programları öne alınmalıdır.

Low birth weight, Wikipedia[22]

Low birth weight (**LBW**) is defined by the World Health Organization as a birth weight of an infant of 2,499 g (5 lb 8.1 oz) or less, regardless of gestational age.[1] Infants born with LBW have added health risks which require close management, often in a neonatal intensive care unit (NICU). They are also at increased risk for long-term health conditions which require follow-up over time.[*citation needed*]

Classification

Birth weight may be classified as:[2]

- High birth weight (macrosomia): greater than 4,200 g (9 lb 4 oz)
- Normal weight (term delivery): 2,500–4,200 g (5 lb 8 oz – 9 lb 4 oz)
- Low birth weight: less than 2,500 g (5 lb 8 oz)
    - Very low birth weight (VLBW): less than 1,500 g (3 lb 5 oz)
    - Extremely low birth weight: less than 1,000 g (2 lb 3 oz)

Causes

LBW is either caused by preterm birth (that is, a low gestational age at birth, commonly defined as younger than 37 weeks of gestation) or the infant being small for gestational age (that is, a slow prenatal growth rate), or a combination of both.[citation needed]

In general, risk factors in the mother that may contribute to low birth weight include young ages, multiple pregnancies, previous LBW infants, poor nutrition, heart disease or hypertension, untreated celiac disease, substance use disorder, excessive alcohol use, and insufficient prenatal care. It can also be caused by prelabor rupture of membranes.[3] Environmental risk factors include smoking, lead exposure, and other types of air pollution.[4][5][6]

Preterm birth

The mechanism of preterm birth is heterogeneous and poorly understood. It may be tied to one or more of the following processes: premature fetal endocrine activation, intrauterine inflammation, over-distension of the uterus, and endometrial bleeding. A prominent risk factor for preterm birth is prior history of preterm delivery. However, there is no reliable protocol for screening and prevention of preterm birth.[7]

Small for gestational age

Infants born small for gestational age may be constitutionally small, with no associated pathologic process. Others have intrauterine growth restriction (IUGR) due to any of various pathologic processes. Babies with chromosomal abnormalities or other congenital anomalies may manifest IUGR as part of their syndrome. Problems with the placenta can prevent it from providing adequate oxygen and nutrients to the fetus, resulting in growth restriction. Infections during pregnancy that affect the fetus, such as rubella, cytomegalovirus, toxoplasmosis, and syphilis, may also affect the baby's weight.[citation needed]

Environmental factors

Maternal tobacco smoking doubles risk of LBW for the infant.[8][9] More recently, passive maternal smoking has been examined for possible effects on birth weight, and has been shown to increase risk of LBW by 16%.[10]

Air pollutants

The combustion products of solid fuel in developing countries can cause many adverse health issues in people. Because a majority of pregnant women in developing countries, where rate of LBW is high, are heavily exposed to indoor air pollution, increased relative risk translates into substantial population attributable risk of 21% of LBW.[11]

Particulate matter, a component of ambient air pollution, is associated with increased risk of low birth weight.[12][13] Because particulate matter is composed of extremely small particles, even nonvisible levels can be inhaled and present harm to the fetus.[14] Particulate matter exposure can cause inflammation, oxidative stress, endocrine disruption, and impaired oxygen transport access to the placenta, all of which are mechanisms for heightening the risk of low birth weight.[15] To reduce exposure to particulate matter, pregnant women can monitor the US Environmental Protection Agency's air quality index and take personal precautionary measures such as reducing outdoor activity on low quality days, avoiding high-traffic roads/intersections, and/or wearing personal protective equipment (i.e., facial mask of industrial design). Indoor exposure to particulate matter can also be reduced through adequate ventilation, as well as use of clean heating and cooking methods.[16][17]

A correlation between maternal exposure to carbon monoxide (CO) and low birth weight has been reported that the effect on birth weight of increased ambient CO was as large as the effect of the mother smoking a pack of cigarettes per day during pregnancy.[18] It has been revealed that adverse reproductive effects (e.g., risk for LBW) were correlated with maternal exposure to CO emissions in Eastern Europe and North America.[19] Mercury is a known toxic heavy metal that can harm fetal growth and health, and there has been evidence showing that exposure to mercury (via consumption of large oily fish) during pregnancy may be related to higher risks of LBW in the offspring.[20]

Other exposures

Elevated blood lead levels in pregnant women, even those well below the US Centers for Disease Control and Prevention's 10 ug/dL "level of concern", can cause miscarriage, premature birth, and LBW in the offspring.[21] Exposure of pregnant women to airplane noise was found to be associated with low birth weight via adverse effects on fetal growth.[22] Prevalence of low birth weight in Japan is associated with radiation doses from the Fukushima accidents of March 2011.[23]

Periodontal health

Low birth weight, preterm birth and preeclampsia have been associated with maternal periodontal disease, though the strength of the observed associations is inconsistent and varies according to the population studied, the means of periodontal assessment and the periodontal disease classification employed.[24] The risk of low birth weight can be reduced with treatment of the periodontal disease. This therapy is safe during pregnancy and reduces the inflammatory burden, thus decreasing risk for preterm birth and low birth weight.[25]

Management

Temperature regulation

LBW newborns are at increased risk of hypothermia due to decreased brown fat stores. Plastic wraps, heated pads, and skin-to-skin contact decrease risk of hypothermia immediately after delivery. One or more of these interventions may be employed, though combinations incur risk of hyperthermia.[26] Warmed incubators in the NICU aid in thermoregulation for LBW infants.[*citation needed*]

Fluid and electrolyte balance

Frequent clinical monitoring of volume status and checking of serum electrolytes (up to three times daily) is appropriate to prevent dehydration, fluid overload, and electrolyte imbalance.[27] VLBW newborns have an increased body surface to weight ratio, increasing risk for insensible fluid losses and dehydration.[28] Humidified incubators and skin emollients can lessen insensible fluid loss in VLBW newborns.[27] However, fluid overloading is not benign; it is associated with increased risk of congestive heart failure, necrotizing enterocolitis, and mortality. A degree of fluid restriction mitigates these risks.[27]

VLBW newborns are at risk for electrolyte imbalances due to the relative immaturity of the nephrons in their kidneys. The kidneys are not equipped to handle large sodium loads. Therefore, if normal saline is given, the sodium level may become elevated, which may prompt the clinician to give more fluids. Sodium restriction has been shown to prevent fluid overload.[27] Potassium must also be monitored carefully, as immature aldosterone sensitivity and sodium-potassium pumping increases risk for hyperkalemia and cardiac arrhythmias.[27]

VLBW newborns are frequently found to have a persistently patent ductus arteriosus (PDA). If present, it is important to evaluate whether the PDA is causing increased circulatory volume, thus posing risk for heart failure. Signs of clinically significant PDA include widened pulse pressure and bounding pulses. In newborns with significant PDA, fluid restriction may avoid the need for surgical or medical therapy to close it.[27]

Approach to nutrition

As their gastrointestinal systems are typically unready for enteral feeds at the time of birth, VLBW infants require initial parenteral infusion of fluids, macronutrients, vitamins, and micronutrients.[28]

Energy needs

Decreased activity compared to normal weight newborns may decrease energy requirements, while comorbidities such as bronchopulmonary dysplasia may increase them. Daily weight gain can reveal whether a VLBW newborn is receiving adequate calories. Growth of 21 g/kg/day, mirroring *in utero* growth, is a target for VLBW and ELBW neonates.[28]

Enteral sources

Upon transitioning to enteral nutrition, human milk is preferable to formula initially in VLBW newborns because it speeds up development of the intestinal barrier and thereby reduces risk of necrotizing enterocolitis,[28] with an absolute risk reduction of 4%.[29] Donor human milk and maternal expressed breast milk are both associated with this benefit.[30] One drawback of human milk is the imprecision in its calorie content. The fat content in human milk varies greatly among women; therefore, the energy content of human milk cannot be known as precisely as formula.[28] Each time human milk is transferred between containers, some of the fat content may stick to the container, decreasing the energy content. Minimizing transfers of human milk between containers decreases the amount of energy loss.[28] Formula is associated with greater linear growth and weight gain than donor breast milk in LBW infants.[30]

Individual nutrient considerations

VLBW newborns are at increased risk for hypoglycemia due to decreased energy reserves and large brain mass to body mass ratio. Hypoglycemia may be prevented by intravenous infusion of glucose, amino acids, and lipids.[28] These patients are also at risk of hyperglycemia due to immature insulin secretion and sensitivity. However, insulin supplementation is not recommended due to the possible adverse effect of hypoglycemia, which is more dangerous.[28]

VLBW newborns have increased need for amino acids to mirror *in utero* nutrition. Daily protein intake above 3.0 g/kg is associated with improved weight gain for LBW infants.[31] ELBW newborns may require as much as 4 g/kg/day of protein.[28]

Due to the limited solubility of calcium and phosphorus in parenteral infusions, VLBW infants receiving parenteral nutrition will be somewhat deficient of these elements and will require clinical monitoring for osteopenia.[28]

Hematology

One Cochrane review showed administration of erythropoietin (EPO) decreases later need for blood transfusions, and also is associated with protection against necrotizing enterocolitis and intraventricular hemorrhage. EPO is safe and does not increase risk of mortality or retinopathy of prematurity.[32]

Prognosis

Perinatal outcomes

LBW is closely associated with fetal and perinatal mortality and morbidity, inhibited growth and cognitive development, and chronic diseases later in life. At the population level, the proportion of babies with a LBW is an indicator of a multifaceted public-health problem that includes long-term maternal malnutrition, ill health, hard work and poor health care in pregnancy. On an individual basis, LBW is an important predictor of newborn health and survival and is associated with higher risk of infant and childhood mortality.[33]

Low birth weight constitutes as sixty to eighty percent of the infant mortality rate in developing countries. Infant mortality due to low birth weight is usually directly causal, stemming from other medical complications such as preterm birth, PPROM,[34] poor maternal nutritional status, lack of prenatal care, maternal sickness during pregnancy, and an unhygienic home environment.[35]

Long-term outcomes

Hyponatremia in the newborn period is associated with neurodevelopmental conditions such as spastic cerebral palsy and sensorineural hearing loss. Rapid correction of hyponatremia (faster than 0.4 mEq/L/hour) perinatally is also associated with neurodevelopmental adverse effects.[27] Among VLBW children, risk for cognitive impairment is increased with lower birth weight, male sex, nonwhite ethnicity, and lower parental education level. There is no clear association between brain injury in the neonatal period and later cognitive impairment.[36] Additionally, low birth weight has associations with cardiovascular diseases later in life, especially in cases of large increases in weight during childhood.[37][38][39][40]

Low birth rate is associated with schizoid personality disorder.[41]

Epidemiology

The World Health Organization (WHO) estimates the worldwide prevalence of low birth weight at 15% as of 2014, and varies by region: Sub-Saharan Africa, 13%; South Asia, 28%; East Asia and the Pacific, 6%; Latin America and the Caribbean, 9%.[42] Aggregate prevalence of LBW in United Nations-designated Least Developed Countries[43] is 13%.[42] The WHO has set a goal of reducing worldwide prevalence of LBW by 30% through public health interventions including improved prenatal care and women's education.[42]

In the United States, the Centers for Disease Control and Prevention (CDC) reports 313,752 LBW infants in 2018, for a prevalence of 8.28%.[44] This is increased from an estimated 6.1% prevalence in 2011 by the Agency for Healthcare Research and Quality (AHRQ).[45] The CDC reported prevalence of VLBW at 1.38% in 2018, similar to the 2011 AHRQ estimate.[45]

Yorum

Düşük Doğum Ağırlıklı Bebek: Gebelik Haftı matür sınırlarda olmasın karşın, ağırlığı ufak olan bebeklerdir. Bunlar doğumda değil, gebelikte fark edilip ona göre tıbbi yaklaşım yapılmasını gerekli kılmalıdır. Makalede 2500-4200 gram doğum ağırlığı normal düzey olarak irdelemektedir. Ancak, 3600 gram üstünde olanlarda kan şeker düzeyi sorunlar gibi yaklaşımlar ile 4000 gram altında bile izlem gereklidir.

Sınıflandırılması.

- 2,500 gram altında olması.
- 1500 gram altına olması: çok düşük doğum ağırlıklı bebek:
- 1000 gram altına olan ileri derecede düşük ağırlıklı bebek:

Konu doğum ile değil, gebelikte kilo alma süreci öne alınmalıdır.

Nedenler ve yaklaşımlar konumuz dışı olduğu için sadece sunulmaktadır, yorumlanmayacaktır.

İstatistiksel veriler: WHO oran olarak %15 rakamı sunmaktadır. Amerika'da % 2.28 olarak ifade edilmektedir. Perinatoloji yaklaşımına göre oluşması beklenmelidir.

Perinatal mortality, Wikipedia[23]

Perinatal mortality (**PNM**) is the death of a fetus or neonate and is the basis to calculate the perinatal mortality rate.[1] *Perinatal* means "relating to the period starting a few weeks before birth and including the birth and a few weeks after birth."[2]

Variations in the precise definition of the perinatal mortality exist, specifically concerning the issue of inclusion or exclusion of early fetal and late neonatal fatalities. The World Health Organization defines perinatal mortality as the "number of stillbirths and deaths in the first week of life per 1,000 total births, the perinatal period commences at 22 completed weeks (154 days) of gestation,[3] and ends seven completed days after birth",[4] but other definitions have been used.[5]

The UK figure is about 8 per 1,000 and varies markedly by social class with the highest rates seen in Asian women. Globally, an estimated 2.6 million neonates died in 2013 before the first month of age down from 4.5 million in 1990.[6]

Causes

Preterm birth is the most common cause of perinatal mortality, causing almost 30 percent of neonatal deaths.[7] Infant respiratory distress syndrome, in turn, is the leading cause of death in preterm infants, affecting about 1% of newborn infants.[8] Birth defects cause about 21 percent of neonatal death.[7]

Fetal mortality

Fetal mortality refers to stillbirths or fetal death.[9] It encompasses any death of a fetus after 20 weeks of gestation or 500 gm. In some definitions of the PNM early fetal mortality (week 20–27 gestation) is not included, and the PNM may only include late fetal death and neonatal death. Fetal death can also be divided into death prior to labor, antenatal (antepartum) death, and death during labor, intranatal (intrapartum) death.

Neonatal mortality

Neonatal mortality refers to death of a live-born baby within the first 28 days of life. Early neonatal mortality refers to the death of a live-born baby within the first seven days of life, while late neonatal mortality refers to death after 7 days until before 28 days. Some definitions of the PNM include only the early neonatal mortality. Neonatal mortality is affected by the quality of in-hospital care for the neonate. Neonatal mortality and postneonatal mortality (covering the remaining 11 months of the first year of life) are reflected in the infant mortality rate.

Perinatal mortality rate

Top ten countries with the highest perinatal mortality rates – 2012[10][11][12]					
Rank	**Country**	**PNMR**	**Rank**	**Country**	**PNMR**
1	Pakistan	40.7	6	Afghanistan	29.0
2	Nigeria	32.7	7	Bangladesh	28.9
3	Sierra Leone	30.8	8	Democratic Republic of the Congo	28.3
4	Somalia	29.7	9	Lesotho	27.5
5	Guinea-Bissau	29.4	10	Angola	27.4

As per 2014 "Save the Children" report for intrapartum stillbirths and neonatal deaths on first day of birth (per 1,000 total births)

The PNMR refers to the number of perinatal deaths per 1,000 total births. It is usually reported on an annual basis.[13] It is a major marker to assess the quality of health care delivery. Comparisons between different rates may be hampered by varying definitions, registration bias, and differences in the underlying risks of the populations.

PNMRs vary widely and may be below 10 for certain developed countries and more than 10 times higher in developing countries.[14] The WHO has not published contemporary data.

Effects of neonatal nutrition on neonatal mortality

Probiotic supplementation of preterm and low birthweight babies during their first month of life can reduce the risk of blood infections, bowel sickness and death in low- and middle-income settings. However, supplementing with Vitamin A does not reduce the risk of death and increases the risk of *bulging fontanelle,* which may cause brain damage.[15]

Yorum

Perinatal ölümler bu açıdan hem aile hem de sağlık kuruluşları açısından yaklaşımlar tıbbi irdelenmeli ve tüm önlemler Devler destekli alınmalıdır. Burada geçerli bile kabul edilecek bir gerekçe olmamalıdır. %40 oranından bunun İngiltere'de bin doğumda 8 civarında olduğu ifade edilmektedir.

Genetik Sorunlarda Yenidoğan Konusu içindedir

Her canlı varlık, genetik olarak tek bir hücreden oluşmakta, bu gelişiminde de genetik kotların önemi ilk planda ele alınmaktadır. Çevre etkileşim, büyüme ve gelişme durumu da buna katkılarda bulunmaktadır.

İnsan türünde, Homo sapiens, sapiens için, COVID-19 sadece İnsan türünü tutma boyutu incelendiğinde, insanda olan Mitokondriyal RNA/DNA ile etkileşim ile infekte etmektedir. Bu boyut anne yumurta/ovum kaynaklıdır. Bu açıdan bakınca tüm insanlar aynı anne kökenlidir, kısaca kardeştirler.

Genetik oluşumların nedeni ortaya konulabilirse, bunun önlenmesi veya uyarılması önemli olabilir. Anne yaşı ile trizomi 21 artması gibi durumlar dikkat edilmelidir.

Erkan tanı için, mutlaka her bireyin irdelenmesi önemlidir. Ülkemizde %11 Thalasemi olması nedeniyle, taşıyıcılarda tanı konulabilirse, evlenmemeleri değil, hastalığın oluşması önlenebilir.

Terminasyon konusu: Batı 2005 yılı Groningen Protokolü ile Savcılığın soruşturma açmaması ve kurul kararı ile termine edilmesi olayı net ortaya konulmuş, daha önce toplum görüşü net yazıya dökülmüştür. 2004 yılında Yayınlanmış, 2005 yılında İnan Hakları ve Avrupa Konseyi ise, yaşam hakkı temeldir demiştir. Etik ilke ile Yasal mevzuat tam tersi olmuştur. Bu halen devam etmektedir.

Amerika'da 3 yıl ara ile Hastane Yenidoğan dahil Etik Kurulda gözlemci olarak bulundum, bu sayede Avrupa ve Dünya Perinatoloji Etik Bildirgesi (İstanbul Bildirgesi) oluşturarak kabulü sağlanmıştır. Reagan bu kurulların Hastane değil, Etik Kurullar şeklinde olması ile karar vermesini temin etmiştir. Ülkemizde de Perinatoloji/Neonatoloji Kurulları ile bu konular irdelenmekledir.

Mecliste bir kanun çıkmadan önce, ilgili yerlerden görüş istenmektedir. Atatürk Halifeyi kaldırmış, Hilafet makamı Diyanet olarak tanımlanmış, aslı görevi gibi danışmanlık olmuştur. Osmanlı ve Selçuklu 622 Medine Antlaşması/Anayasası gibi yaklaşım ile tüm insanlar eşit ve kanıta dayalı yargılanma olmuş, yorum ve kıyas yasaklanmıştır. Jüri sistematiği, ortak akıl ve kamu vicdanı gibi gerekçeler suç için geçerli değildir ve dikkate bile alınamaz. Bu açıdan şeriat denilen ve Katolik usulü olan yaklaşım hiç uygulanmamıştır. Ancak Medeni Kanun, kanunda bulunmaz ise dikkate alınabilir denilmektedir. Taşlanarak öldürme Yahudi adedidir, bir kişiyi öldürme tüm insanlığı öldürmedir ve dinde zorlama ve onun dini/inanışı ona, seninki sana yaklaşımı ile net ortaya konulmaktadır ve bu kesin Kuran hükümleridir.

Diyanet görüşü: 1) Annenin sağlığı öncelikli ve temeldir, bu açıdan olaya bakılmalıdır, 2) Ekonomik, bakamayacağım gerekçesi olmaz, kabul göremez, 3) Bebeğin oluşma/ kemikleşme/ embriyo dönemi olduktan sonra artık varlık oluşmuş, hukuken yaşam hakkı oluşmuştur. Bu 10 Haftadır, buna göre anne hakkı çocuğun hakkı ile bütünleşmiş iken, daha sonra annenin hakkı ayrılmaktadır. Bu süreç Batı ülkelerinde 12 hafta olarak tanımlanır, bizde Son Adet Tarihi temel alındığı için aynı denilebilir. Ülkemizde bu hak anne ve baba olarak geçmektedir. 3) Embriyolojik gelişimi tamamlamış olan bebek artık ayrı bir varlık ve yaşam hakkı vardır. Bu sağlanmalıdır.
Bu durum tüm İslam Alemince de kabul edilmiş ve uygulanmaktadır.
Perinatoloji Kurul toplantıları, bu bebeklere yaşam hakkı nasıl sağlanmalı konusunda olacaktır.

Groningen Protocol, Wikipedia[24]

The **Groningen Protocol** is a medical protocol created in September 2004 by Eduard Verhagen, the medical director of the department of pediatrics at the University Medical Center Groningen (UMCG) in Groningen, the Netherlands. It contains directives with criteria under which physicians can perform "active ending of life on infants" (child euthanasia) without fear of legal prosecution.[1][2][3]

Origin

The protocol was created by a committee of physicians and others at the University Medical Center Groningen, in consultation with the Groningen district attorney, and has been ratified by the Dutch National Association of Pediatricians.[4]

According to its authors, the Groningen Protocol was developed in order to assist with the decision making process when considering actively ending the life of a newborn, by providing the information required to assess the situation within a legal and medical framework.[5] In July 2005 the Protocol was declared to be mandatory by the Dutch Society for Pediatrics.[6]

Protocol

The protocol, drawn up after extensive consultation between physicians, lawyers, parents and the Prosecution Office, offers procedures and guidelines to achieve the correct decision and performance. The final decision about "active ending of life on infants" is *not* in the hands of the physicians but with the parents, with physicians and social workers agreeing to it. Criteria are, amongst others, "unbearable suffering" and "expected quality of life". Only the parents may initiate the procedure. The procedure is reported to be working well.[7]

For the Dutch public prosecutor, the termination of a child's life (under age 1) is acceptable if four requirements were properly fulfilled:

1. The presence of hopeless and unbearable suffering.
2. The consent of the parents to termination of life.
3. Medical consultation having taken place.
4. Careful execution of the termination.[7]

Doctors who end the life of a baby must report the death to the local medical examiner, who in turn reports it to both the district attorney and to a review committee. The procedure differs in this respect from the black letter law governing voluntary euthanasia. There, the medical examiner sends the

report only to the regional review committee, which alerts the district attorney only if it judges that the physician acted improperly.

Legal status

The Dutch euthanasia laws require people to ask for euthanasia themselves (voluntary euthanasia), and it is legal for people of 12 years and older. In the Netherlands, euthanasia remains technically illegal for patients under the age of 12. The Groningen Protocol does not give physicians unassailable legal protection. Case law has so far protected physicians from prosecution as long as they act in accordance with the protocol, but no black-letter law exists in this area.[4] In April 2023 the Dutch parliament released a statement that an arrangement will be introduced for the termination of life of seriously ill and untreatable children aged 1 to 12. This arrangement follows some areas of the Groningen protocol: "It will concern children with such a serious illness or disorder that death is inevitable and the death of these children is expected in the foreseeable future."[8]

Review

In 2005 a review study was undertaken of all 22 reported cases between 1997 and 2004.[7] All cases concerned newborns with spina bifida and hydrocephalus. In all cases, at least 2 doctors were consulted outside the medical team. In 17 of 22 cases, a multidisciplinary spina bifida team was consulted. All parents consented to the termination of life; in 4 cases they explicitly requested it. The mean time between reporting of the case and the decision concerning prosecution was 5.3 months. None of the cases led to prosecution. The study concluded that all cases of active termination of life reported were found to be in accordance with good practice.[7]

Reception

The protocol is controversial and has been attacked by anti-euthanasia campaigner Wesley J. Smith,[9] Senior Fellow at the Discovery Institute, who described it as little more than an attempt to legalize infanticide.[10]

Several studies have questioned the basis for the protocol and have recommended abandoning it;[11][12][13] however, bioethicist Jacob M. Appel of New York University has said that the protocol is a success and should be expanded.[14] Hilde Lindemann and Marian Verkerk said that the policy must be evaluated in the context of Dutch culture and medicine,[15] but Eric Kodish has harshly criticized the protocol and its premises in an article published in *The Lancet*. Kodish concluded by inviting resistance to the protocol by means of civil disobedience against the medical institutionalization of infanticide.[3]

Makalede geniş incelenmeyecektir: Groningen Protokolü tam incelemeyecektir ama bazı noktalara değinilmesi gerekir.

Terminasyon 1 yaşın altında çocuklara da kapsamaktadır. 1) Ümitsiz olgu olması; sorgusu *kime göre ümitsiz, yaşam hakkını mahkeme bile vermezken hekimler nasıl vermektedir?* 2) Ailenin yaşamın sonlanmasını rıza ile talep etmesi; sorgusu *aileye bebeğini öldürme kararı vermek, insafsızlık ötesidir, Amerika'da Devlet ödemiyor, siz ödeyeceksiniz denilmektedir. Gündelik 12,000 dolar artı masrafları kim ödeyebilecektir ki?* 3) Tıbbi açıdan da bu kararın verilmesi; sorgusu, *hekimler insanın yaşamı ve yaşam hakkı üzerinde etik söz vermişken, şimdi de ölüm hararının verilmesi istenilmektedir*. 4) Yaşamın sonlanmasının dikkatlice, ara vermeden yapılması; sorgusu, *adam öldürme yöntemleri öğrenilmektedir, hekim yapmaktadır*. Amerika'da bu nedenle letting to die denilerek, ölüme terk edilmekte, ventilatörün fişi çekilmektedir.

Aklımıza 1968 olayları sırasında olaylarda yararlanıp, ölen kişiler, hastanede ventilatör çalışmaya devam ediyordu. Ne zaman jandarma tedbirleri alır, sonra öldü denilirdi. Çünkü toplum ölümü kabul etmiyordu.

Birth defect, Wikipedia[25]

A **birth defect**, also known as a **congenital disorder**, is an abnormal condition that is present at birth regardless of its cause.[3] Birth defects may result in disabilities that may be physical, intellectual, or developmental.[3] The disabilities can range from mild to severe.[7] Birth defects are divided into two main types: structural disorders in which problems are seen with the shape of a body part and functional disorders in which problems exist with how a body part works.[4] Functional disorders include metabolic and degenerative disorders.[4] Some birth defects include both structural and functional disorders.[4]

Birth defects may result from genetic or chromosomal disorders, exposure to certain medications or chemicals, or certain infections during pregnancy.[5] Risk factors include folate deficiency, drinking alcohol or smoking during pregnancy, poorly controlled diabetes, and a mother over the age of 35 years old.[6][7] Many are believed to involve multiple factors.[7] Birth defects may be visible at birth or diagnosed by screening tests.[10] A number of defects can be detected before birth by different prenatal tests.[10]

Treatment varies depending on the defect in question.[8] This may include therapy, medication, surgery, or assistive technology.[8] Birth defects affected about 96 million people as of 2015.[11] In the United States, they occur in about 3% of newborns.[2] They resulted in about 628,000 deaths in 2015, down from 751,000 in 1990.[9][12] The types with the greatest numbers of deaths are congenital heart disease (303,000), followed by neural tube defects (65,000).[9]

Classification

Much of the language used for describing congenital conditions antedates genome mapping, and structural conditions are often considered separately from other congenital conditions. Many metabolic conditions are now known to have subtle structural expression, and structural conditions often have genetic links. Still, congenital conditions are often classified on a structural basis, organized when possible by primary organ system affected.[*citation needed*]

Primarily structural

Several terms are used to describe congenital abnormalities. (Some of these are also used to describe non-congenital conditions, and more than one term may apply in an individual condition.)

Terminology

- A **congenital physical anomaly** is an abnormality of the structure of a body part. It may or may not be perceived as a problem condition. Many, if not most, people have one or more minor physical anomalies if examined carefully. Examples of minor anomalies can include curvature of the fifth finger (clinodactyly), a third nipple, tiny indentations of the skin near the ears (preauricular pits), shortness of the fourth metacarpal or metatarsal bones, or dimples over the lower spine (sacral dimples). Some minor anomalies may be clues to more significant internal abnormalities.
- **Birth defect** is a widely used term for a congenital malformation, *i.e.* a congenital, physical anomaly that is recognizable at birth, and which is significant enough to be considered a problem. According to the Centers for Disease Control and Prevention (CDC), most birth defects are believed to be caused by a complex mix of factors including genetics, environment, and behaviors,[13] though many birth defects have no known cause. An example of a birth defect is cleft palate, which occurs during the fourth through seventh weeks of gestation.[14] Body tissue and special cells from each side of the head grow toward the center of the face. They join to make the face.[14] A cleft means a split or separation; the "roof" of the mouth is called the palate.[15]
- A **congenital malformation** is a physical anomaly that is deleterious, *i.e.* a structural defect perceived as a problem. A typical combination of malformations affecting more than one body part is referred to as a **malformation syndrome**.
- Some conditions are due to abnormal tissue development:
    - A malformation is associated with a disorder of tissue development.[16] Malformations often occur in the first trimester.
    - A dysplasia is a disorder at the organ level that is due to problems with tissue development.[16]
- Conditions also can arise after tissue is formed:
    - A deformation is a condition arising from mechanical stress to normal tissue.[16] Deformations often occur in the second or third trimester, and can be due to oligohydramnios.

- A disruption involves breakdown of normal tissues.[16]

- When multiple effects occur in a specified order, they are known as a sequence. When the order is not known, it is a syndrome.

Examples of primarily structural congenital disorders

A limb anomaly is called a dysmelia. These include all forms of limbs anomalies, such as amelia, ectrodactyly, phocomelia, polymelia, polydactyly, syndactyly, polysyndactyly, oligodactyly, brachydactyly, achondroplasia, congenital aplasia or hypoplasia, amniotic band syndrome, and cleidocranial dysostosis.[17]

Congenital heart defects include patent ductus arteriosus, atrial septal defect, ventricular septal defect, and tetralogy of Fallot.

Congenital anomalies of the nervous system include neural tube defects such as spina bifida, encephalocele, and anencephaly. Other congenital anomalies of the nervous system include the Arnold–Chiari malformation, the Dandy–Walker malformation, hydrocephalus, microencephaly, megalencephaly, lissencephaly, polymicrogyria, holoprosencephaly, and agenesis of the corpus callosum.[18]

Congenital anomalies of the gastrointestinal system include numerous forms of stenosis and atresia, and perforation, such as gastroschisis.[19]

Congenital anomalies of the kidney and urinary tract include renal parenchyma, kidneys, and urinary collecting system.[20]

Defects can be bilateral or unilateral, and different defects often coexist in an individual child.[21]

Primarily metabolic

A **congenital metabolic disease** is also referred to as an inborn error of metabolism. Most of these are single-gene defects, usually heritable. Many affect the structure of body parts, but some simply affect the function.[22]

Other

Other well-defined genetic conditions may affect the production of hormones, receptors, structural proteins, and ion channels.

Causes

Alcohol exposure

The mother's consumption of alcohol during pregnancy can cause a continuum of various permanent birth defects: craniofacial abnormalities,[23] brain damage,[24] intellectual disability,[25] heart disease, kidney abnormality, skeletal anomalies, ocular abnormalities.[26]

The prevalence of children affected is estimated at least 1% in U.S.[27] as well in Canada.

Very few studies have investigated the links between paternal alcohol use and offspring health.[28]

However, recent animal research has shown a correlation between paternal alcohol exposure and decreased offspring birth weight. Behavioral and cognitive disorders, including difficulties with learning and memory, hyperactivity, and lowered stress tolerance have been linked to paternal alcohol ingestion.[29] The compromised stress management skills of animals whose male parent was exposed to alcohol are similar to the exaggerated responses to stress that children with fetal alcohol syndrome display because of maternal alcohol use. These birth defects and behavioral disorders were found in cases of both long- and short-term paternal alcohol ingestion.[30][31] In the same animal study, paternal alcohol exposure was correlated with a significant difference in organ size and the increased risk of the offspring displaying ventricular septal defects at birth.[31]

Toxic substances

Substances whose toxicity can cause congenital disorders are called teratogens, and include certain pharmaceutical and recreational drugs in pregnancy, as well as many environmental toxins in pregnancy.[32]

A review published in 2010 identified six main teratogenic mechanisms associated with medication use: folate antagonism, neural crest cell disruption, endocrine disruption, oxidative stress, vascular disruption, and specific receptor- or enzyme-mediated teratogenesis.[33]

An estimated 10% of all birth defects are caused by prenatal exposure to a teratogenic agent.[34] These exposures include medication or drug exposures, maternal infections and diseases, and environmental and occupational exposures. Paternal smoking has also been linked to an increased risk of birth defects and childhood cancer for the offspring, where the paternal germline undergoes oxidative damage due to cigarette use.[35][36] Teratogen-caused birth defects are potentially preventable. Nearly 50% of pregnant women have

been exposed to at least one medication during gestation.[37] During pregnancy, a woman can also be exposed to teratogens from contaminated clothing or toxins within the seminal fluid of a partner.[38][30][39] An additional study found that of 200 individuals referred for genetic counseling for a teratogenic exposure, 52% were exposed to more than one potential teratogen.[40]

The United States Environmental Protection Agency studied 1,065 chemical and drug substances in their ToxCast program (part of the CompTox Chemicals Dashboard) using *in silico* modeling and a human pluripotent stem cell-based assay to predict in vivo developmental intoxicants based on changes in cellular metabolism following chemical exposure. Findings of the study published in 2020 were that 19% of the 1065 chemicals yielded a prediction of developmental toxicity.[41]

Medications and supplements

Probably, the most well-known teratogenic drug is thalidomide. It was developed near the end of the 1950s by Chemie Grünenthal as a sleep-inducing aid and antiemetic. Because of its ability to prevent nausea, it was prescribed for pregnant women in almost 50 countries worldwide between 1956 and 1962.[42] Until William McBride published the study leading to its withdrawal from the market in 1961, about 8,000 to 10,000 severely malformed children were born. The most typical disorders induced by thalidomide were reductional deformities of the long bones of the extremities. Phocomelia, otherwise a rare deformity, therefore helped to recognise the teratogenic effect of the new drug. Among other malformations caused by thalidomide were those of ears, eyes, brain, kidney, heart, and digestive and respiratory tracts; 40% of the prenatally affected children died soon after birth.[42] As thalidomide is used today as a treatment for multiple myeloma and leprosy, several births of affected children were described in spite of the strictly required use of contraception among female patients treated by it.

Vitamin A is the sole vitamin that is embryotoxic even in a therapeutic dose, for example in multivitamins, because its metabolite, retinoic acid, plays an important role as a signal molecule in the development of several tissues and organs. Its natural precursor, β-carotene, is considered safe, whereas the consumption of animal liver can lead to malformation, as the liver stores lipophilic vitamins, including retinol.[42] Isotretinoin (13-cis-retinoic-acid; brand name Roaccutane), vitamin A analog, which is often used to treat severe acne, is such a strong teratogen that just a single dose taken by a pregnant woman (even transdermally) may result in serious birth defects. Because of this effect, most countries have systems in place to ensure that it is not given to pregnant women and that the patient is aware of how important it is to prevent pregnancy during and at least one month after treatment. Medical guidelines also suggest that pregnant women should limit vitamin A intake to about 700 µg/day, as it has teratogenic potential when consumed in excess.[43][44] Vitamin A and similar substances can induce spontaneous abortions, premature births, defects of eyes (microphthalmia), ears, thymus, face deformities, and neurological (hydrocephalus, microcephalia) and cardiovascular defects, as well as intellectual disability.[42]

Tetracycline, an antibiotic, should never be prescribed to women of reproductive age or to children, because of its negative impact on bone mineralization and teeth mineralization. The "tetracycline teeth" have brown or grey colour as a result of a defective development of both the dentine and the enamel of teeth.[42]

Several anticonvulsants are known to be highly teratogenic. Phenytoin, also known as diphenylhydantoin, along with carbamazepine, is responsible for the fetal hydantoin syndrome, which may typically include broad nose base, cleft lip and/or palate, microcephalia, nails and fingers hypoplasia, intrauterine growth restriction, and intellectual disability. Trimethadione taken during pregnancy is responsible for the fetal trimethadione syndrome, characterized by craniofacial, cardiovascular, renal, and spine malformations, along with a delay in mental and physical development. Valproate has antifolate effects, leading to neural tube closure-related defects such as spina bifida. Lower IQ and autism have recently also been reported as a result of intrauterine valproate exposure.[42]

Hormonal contraception is considered harmless for the embryo. Peterka and Novotná[42] do, however, state that synthetic progestins used to prevent miscarriage in the past frequently caused masculinization of the outer reproductive organs of female newborns due to their androgenic activity. Diethylstilbestrol is a synthetic estrogen used from the 1940s to 1971, when the prenatal exposition has been linked to the clear-cell adenocarcinoma of the vagina. Following studies showed elevated risks for other tumors and congenital malformations of the sex organs for both sexes.

All cytostatics are strong teratogens; abortion is usually recommended when pregnancy is discovered during or before chemotherapy. Aminopterin, a cytostatic drug with antifolate effect, was used during the 1950s and 1960s to induce therapeutic abortions. In some cases, the abortion did not happen, but the newborns had a fetal aminopterin syndrome consisting of growth retardation, craniosynostosis, hydrocephalus, facial dismorphities, intellectual disability, or leg deformities[42][45]

Toxic substances

Drinking water is often a medium through which harmful toxins travel. Heavy metals, elements, nitrates, nitrites, and fluoride can be carried through water and cause congenital disorders.[46]

Nitrate, which is found mostly in drinking water from ground sources, is a powerful teratogen. A case-control study in rural Australia that was conducted following frequent reports of prenatal mortality and congenital malformations found that those who drank the nitrate-containing groundwater, as opposed to rain water, ran the risk of giving birth to children with central nervous system disorders, muscoskeletal defects, and cardiac defects.[47]

Chlorinated and aromatic solvents such as benzene and trichloroethylene sometimes enter the water supply due to oversights in waste disposal. A case-control study on the area found that by 1986, leukemia was occurring in the children of Woburn, Massachusetts, at a rate that was four times the expected rate of incidence. Further investigation revealed a connection between the high occurrence of leukemia and an error in water distribution that delivered water to the town with significant contamination with manufacturing waste containing trichloroethylene.[48] As an endocrine disruptor, DDT was shown to induce miscarriages, interfere with the development of the female reproductive system, cause the congenital hypothyroidism, and suspectably childhood obesity.[42]

Fluoride, when transmitted through water at high levels, can also act as a teratogen. Two reports on fluoride exposure from China, which were controlled to account for the education level of parents, found that children born to parents who were exposed to 4.12 ppm fluoride grew to have IQs that were, on average, seven points lower than their counterparts whose parents consumed water that contained 0.91 ppm fluoride. In studies conducted on rats, higher fluoride in drinking water led to increased acetylcholinesterase levels, which can alter prenatal brain development. The most significant effects were noted at a level of 5 ppm.[49]

The fetus is even more susceptible to damage from carbon monoxide intake, which can be harmful when inhaled during pregnancy, usually through first- or second-hand tobacco smoke. The concentration of carbon monoxide in the infant born to a nonsmoking mother is around 2%, and this concentration drastically increases to a range of 6%–9% if the mother smoked tobacco. Other possible sources of prenatal carbon monoxide intoxication are exhaust gas from combustion motors, use of dichloromethane (paint thinner, varnish removers) in enclosed areas, defective gas water heaters, indoor barbeques, open flames in poorly ventilated areas, and atmospheric exposure in highly polluted areas. [50] Exposure to carbon monoxide at toxic levels during the first two trimesters of pregnancy can lead to intrauterine growth restriction, leading to a baby who has stunted growth and is born smaller than 90% of other babies at the same gestational age. The effect of chronic exposure to carbon monoxide can depend on the stage of pregnancy in which the mother is exposed. Exposure during the embryonic stage can have neurological consequences, such as telencephalic dysgenesis, behavioral difficulties during infancy, and reduction of cerebellum volume. Also, possible skeletal defects could result from exposure to carbon monoxide during the embryonic stage, such as hand and foot malformations, hip dysplasia, hip subluxation, agenesis of a limb, and inferior maxillary atresia with glossoptosis. Also, carbon monoxide exposure between days 35 and 40 of embryonic development can lead to an increased risk of the child developing a cleft palate. Exposure to carbon monoxide or polluted ozone exposure can also lead to cardiac defects of the ventrical septal, pulmonary artery, and heart valves.[51] The effects of carbon monoxide exposure are decreased later in fetal development during the fetal stage, but they may still lead to anoxic encephalopathy.[52]

Industrial pollution can also lead to congenital defects.[53] Over a period of 37 years, the Chisso Corporation, a petrochemical and plastics company, contaminated the waters of Minamata Bay with an estimated 27 tons of methylmercury, contaminating the local water supply. This led many people in the area to develop what became known as the "Minamata disease". Because methylmercury is a teratogen, the mercury poisoning of those residing by the bay resulted in neurological defects in the offspring. Infants exposed to mercury poisoning *in utero* showed predispositions to cerebral palsy, ataxia, inhibited psychomotor development, and intellectual disability.[54]

Landfill sites have been shown to have adverse effects on fetal development. Extensive research has shown that landfills have several negative effects on babies born to mothers living near landfill sites: low birth weight, birth defects, spontaneous abortion, and fetal and infant mortality. Studies done around the Love Canal site near Niagara Falls and the Lipari Landfill in New Jersey have shown a higher proportion of low birth-weight babies than communities farther away from landfills. A study done in California showed a positive correlation between time and quantity of dumping and low birth weights and neonatal deaths. A study in the United Kingdom showed a correlation between pregnant women living near landfill sites and an increased risk of congenital disorders, such as neural tube defects, hypospadias, epispadia, and abdominal wall defects, such as gastroschisis and exomphalos. A study conducted on a Welsh community also showed an increased incidence of gastroschisis. Another study on 21 European hazardous-waste sites showed that those living within 3 km had an increased risk of giving birth to infants with birth defects and that as distance from the land increased, the risk decreased. These birth defects included neural tube defects, malformations of the cardiac septa, anomalies of arteries and veins, and chromosomal anomalies.[55] Looking at communities that live near landfill sites brings up environmental justice. A vast majority of sites are located near poor, mostly black, communities. For example, between the early 1920s and 1978, about 25% of Houston's population was black. However, over 80% of landfills and incinerators during this time were located in these black communities.[56]

Another issue regarding environmental justice is lead poisoning. A fetus exposed to lead during the pregnancy can result in learning difficulties and slowed growth. Some paints (before 1978) and pipes contain lead. Therefore, pregnant women who live in homes with lead paint inhale the dust containing lead, leading to lead exposure in the fetus. When lead pipes are used for drinking water and cooking water, this water is ingested, along with the lead, exposing the fetus to this toxin. This issue is more prevalent in poorer communities because more well-off families are able to afford to have their homes repainted and pipes renovated.[57]

Smoking

Paternal smoking prior to conception has been linked with the increased risk of congenital abnormalities in offspring.[28]

Smoking causes DNA mutations in the germline of the father, which can be inherited by the offspring. Cigarette smoke acts as a chemical mutagen on germ cell DNA. The germ cells suffer oxidative damage, and the effects can be seen in altered mRNA production, infertility issues, and side effects in the embryonic and fetal stages of development. This oxidative damage may result in epigenetic or genetic modifications of the father's germline. Fetal lymphocytes have been damaged as a result of a father's smoking habits prior to conception.[36][38]

Correlations between paternal smoking and the increased risk of offspring developing childhood cancers (including acute leukemia, brain tumors, and lymphoma) before age five have been established. Little is currently known about how paternal smoking damages the fetus, and what window of time in which the father smokes is most harmful to offspring.[36]

Infections

A vertically transmitted infection is an infection caused by bacteria, viruses, or in rare cases, parasites transmitted directly from the mother to an embryo, fetus, or baby during pregnancy or childbirth.[58]

Congenital disorders were initially believed to be the result of only hereditary factors. However, in the early 1940s, Australian pediatric ophthalmologist Norman Gregg began recognizing a pattern in which the infants arriving at his surgery were developing congenital cataracts at a higher rate than those who developed it from hereditary factors.[59] On October 15, 1941, Gregg delivered a paper that explained his findings-68 out of the 78 children with congenital cataracts had been exposed *in utero* to rubella due to an outbreak in Australian army camps. These findings confirmed, to Gregg, that, in fact, environmental causes for congenital disorders could exist.

Rubella is known to cause abnormalities of the eye, internal ear, heart, and sometimes the teeth. More specifically, fetal exposure to rubella during weeks five to ten of development (the sixth week particularly) can cause cataracts and microphthalmia in the eyes. If the mother is infected with rubella during the ninth week, a crucial week for internal ear development, destruction of the organ of Corti can occur, causing deafness. In the heart, the ductus arteriosus can remain after birth, leading to hypertension. Rubella can also lead to atrial and ventricular septal defects in the heart. If exposed to rubella in the second trimester, the fetus can develop central nervous system malformations. However, because infections of rubella may remain undetected, misdiagnosed, or unrecognized in the mother, and/or some abnormalities are not evident until later in the

child's life, precise incidence of birth defects due to rubella are not entirely known. The timing of the mother's infection during fetal development determines the risk and type of birth defect. As the embryo develops, the risk of abnormalities decreases. If exposed to the rubella virus during the first four weeks, the risk of malformations is 47%. Exposure during weeks five through eight creates a 22% chance, while weeks 9–12, a 7% chance exists, followed by 6% if the exposure is during the 13th-16th weeks. Exposure during the first eight weeks of development can also lead to premature birth and fetal death. These numbers are calculated from immediate inspection of the infant after birth. Therefore, mental defects are not accounted for in the percentages because they are not evident until later in the child's life. If they were to be included, these numbers would be much higher.[60]

Other infectious agents include cytomegalovirus, the herpes simplex virus, hyperthermia, toxoplasmosis, and syphilis. Maternal exposure to cytomegalovirus can cause microcephaly, cerebral calcifications, blindness, chorioretinitis (which can cause blindness), hepatosplenomegaly, and meningoencephalitis in fetuses.[60] Microcephaly is a disorder in which the fetus has an atypically small head,[61] cerebral calcifications means certain areas of the brain have atypical calcium deposits,[62] and meningoencephalitis is the enlargement of the brain. All three disorders cause abnormal brain function or intellectual disability. Hepatosplenomegaly is the enlargement of the liver and spleen which causes digestive problems.[63] It can also cause some kernicterus and petechiae. Kernicterus causes yellow pigmentation of the skin, brain damage, and deafness.[64] Petechaie is when the capillaries bleed resulting in red/purple spots on the skin.[65] However, cytomegalovirus is often fatal in the embryo. The Zika virus can also be transmitted from the pregnant mother to her baby and cause microcephaly.

The herpes simplex virus can cause microcephaly, microphthalmus (abnormally small eyeballs),[66] retinal dysplasia, hepatosplenomegaly, and intellectual disability.[60] Both microphthalmus and retinal dysplasia can cause blindness. However, the most common symptom in infants is an inflammatory response that develops during the first three weeks of life.[60] Hyperthermia causes anencephaly, which is when part of the brain and skull are absent in the infant.[60][67] Mother exposure to toxoplasmosis can cause cerebral calcification, hydrocephalus (causes mental disabilities),[68] and intellectual disability in infants. Other birth abnormalities have been reported as well, such as chorioretinitis, microphthalmus, and ocular defects. Syphilis causes congenital deafness, intellectual disability, and diffuse fibrosis in organs, such as the liver and lungs, if the embryo is exposed.[60]

Malnutrition

For example, a lack of folic acid, a B vitamin, in the diet of a mother can cause cellular neural tube deformities that result in spina bifida. Congenital disorders such as a neural tube deformity can be prevented by 72% if the mother consumes 4 mg of folic acid before the conception and after twelve weeks of pregnancy.[69] Folic acid, or vitamin B_9, aids the development of the foetal nervous system.[69]

Studies with mice have found that food deprivation of the male mouse prior to conception leads to the offspring displaying significantly lower blood glucose levels.[70]

Physical restraint

External physical shocks or constraints due to growth in a restricted space may result in unintended deformation or separation of cellular structures resulting in an abnormal final shape or damaged structures unable to function as expected. An example is Potter syndrome due to oligohydramnios. This finding is important for future understanding of how genetics may predispose individuals for diseases such as obesity, diabetes, and cancer.[71]

For multicellular organisms that develop in a womb, the physical interference or presence of other similarly developing organisms such as twins can result in the two cellular masses being integrated into a larger whole, with the combined cells attempting to continue to develop in a manner that satisfies the intended growth patterns of both cell masses.[72] The two cellular masses can compete with each other, and may either duplicate or merge various structures. This results in conditions such as conjoined twins, and the resulting merged organism may die at birth when it must leave the life-sustaining environment of the womb and must attempt to sustain its biological processes independently.

Genetics

Genetic causes of birth defects include inheritance of abnormal genes from the mother or the father, as well as new mutations in one of the germ cells that gave rise to the fetus. Male germ cells mutate at a much faster rate

than female germ cells, and as the father ages, the DNA of the germ cells mutates quickly.[35][73] If an egg is fertilized with sperm that has damaged DNA, a possibility exists that the fetus could develop abnormally.[73][74] Genetic disorders are all congenital (present at birth), though they may not be expressed or recognized until later in life. Genetic disorders may be grouped into single-gene defects, multiple-gene disorders, or chromosomal defects. Single-gene defects may arise from abnormalities of both copies of an autosomal gene (a recessive disorder) or of only one of the two copies (a dominant disorder). Some conditions result from deletions or abnormalities of a few genes located contiguously on a chromosome. Chromosomal disorders involve the loss or duplication of larger portions of a chromosome (or an entire chromosome) containing hundreds of genes. Large chromosomal abnormalities always produce effects on many different body parts and organ systems.

Defect sperm

Non-genetic defects in sperm cells, such as deformed centrioles and other components in the tail and neck of the sperm which are important for the embryonic development, may result in defects.[75][76]

Socioeconomics

A low socioeconomic status in a deprived neighborhood may include exposure to "environmental stressors and risk factors".[77] Socioeconomic inequalities are commonly measured by the Cartairs-Morris score, Index of Multiple Deprivation, Townsend deprivation index, and the Jarman score.[78] The Jarman score, for example, considers "unemployment, overcrowding, single parents, under-fives, elderly living alone, ethnicity, low social class and residential mobility".[78] In Vos' meta-analysis these indices are used to view the effect of low SES neighborhoods on maternal health. In the meta-analysis, data from individual studies were collected from 1985 up until 2008.[78] Vos concludes that a correlation exists between prenatal adversities and deprived neighborhoods.[78] Other studies have shown that low SES is closely associated with the development of the fetus in utero and growth retardation.[79] Studies also suggest that children born in low SES families are "likely to be born prematurely, at low birth weight, or with asphyxia, a birth defect, a disability, fetal alcohol syndrome, or AIDS".[79] Bradley and Corwyn also suggest that congenital disorders arise from the mother's lack of nutrition, a poor lifestyle, maternal substance abuse and "living in a neighborhood that contains hazards affecting fetal development (toxic waste dumps)".[79] In a meta-analysis that viewed how inequalities influenced maternal health, it was suggested that deprived neighborhoods often promoted behaviors such as smoking, drug and alcohol use.[77] After controlling for socioeconomic factors and ethnicity, several individual studies demonstrated an association with outcomes such as perinatal mortality and preterm birth.[77]

Radiation

For the survivors of the atomic bombing of Hiroshima and Nagasaki, who are known as the *Hibakusha*, no statistically demonstrable increase of birth defects/congenital malformations was found among their later conceived children, or found in the later conceived children of cancer survivors who had previously received radiotherapy.[80][81][82][83] The surviving women of Hiroshima and Nagasaki who were able to conceive, though exposed to substantial amounts of radiation, later had children with no higher incidence of abnormalities/birth defects than in the Japanese population as a whole.[84][85]

Relatively few studies have researched the effects of paternal radiation exposure on offspring. Following the Chernobyl disaster, it was assumed in the 1990s that the germ line of irradiated fathers suffered minisatellite mutations in the DNA, which was inherited by descendants.[30][86] More recently, however, the World Health Organization states, "children conceived before or after their father's exposure showed no statistically significant differences in mutation frequencies".[87] This statistically insignificant increase was also seen by independent researchers analyzing the children of the liquidators.[88] Animal studies have shown that incomparably *massive* doses of X-ray irradiation of male mice resulted in birth defects of the offspring.[38]

In the 1980s, a relatively high prevalence of pediatric leukemia cases in children living near a nuclear processing plant in West Cumbria, UK, led researchers to investigate whether the cancer was a result of paternal radiation exposure. A significant association between paternal irradiation and offspring cancer was found, but further research areas close to other nuclear processing plants did not produce the same results.[38][30] Later this was determined to be the Seascale cluster in which the leading hypothesis is the influx of foreign workers, who have a different rate of leukemia within their race than the British average, resulted in the observed cluster of 6 children more than expected around Cumbria.[89]

Parent's age

Certain birth complications can occur more often in advanced maternal age (greater than 35 years). Complications include fetal growth restriction, preeclampsia, placental abruption, pre-mature births, and stillbirth. These complications not only may put the child at risk, but also the mother.[90]
The effects of the father's age on offspring are not yet well understood and are studied far less extensively than the effects of the mother's age.[91] Fathers contribute proportionally more DNA mutations to their offspring via their germ cells than the mother, with the paternal age governing how many mutations are passed on. This is because, as humans age, male germ cells acquire mutations at a much faster rate than female germ cells.[35][38][73]
Around a 5% increase in the incidence of ventricular septal defects, atrial septal defects, and patent ductus arteriosus in offspring has been found to be correlated with advanced paternal age. Advanced paternal age has also been linked to increased risk of achondroplasia and Apert syndrome. Offspring born to fathers under the age of 20 show increased risk of being affected by patent ductus arteriosus, ventricular septal defects, and the tetralogy of Fallot. It is hypothesized that this may be due to environmental exposures or lifestyle choices.[91]
Research has found that there is a correlation between advanced paternal age and risk of birth defects such as limb anomalies, syndromes involving multiple systems, and Down syndrome.[73][35][92] Recent studies have concluded that 5-9% of Down syndrome cases are due to paternal effects, but these findings are controversial.[73][74][35][93]
There is concrete evidence that advanced paternal age is associated with the increased likelihood that a mother will have a miscarriage or that fetal death will occur.[73]

Unknown

Although significant progress has been made in identifying the etiology of some birth defects, approximately 65% have no known or identifiable cause.[34] These are referred to as sporadic, a term that implies an unknown cause, random occurrence regardless of maternal living conditions,[94] and a low recurrence risk for future children. For 20-25% of anomalies there seems to be a "multifactorial" cause, meaning a complex interaction of multiple minor genetic anomalies with environmental risk factors. Another 10–13% of anomalies have a purely environmental cause (e.g. infections, illness, or drug abuse in the mother). Only 12–25% of anomalies have a purely genetic cause. Of these, the majority are chromosomal anomalies.[95]
Congenital disorders are not limited to humans and can be found in a variety of other species, including cattle. One such condition is called schistosomus reflexus and is defined by spinal inversion, exposure of abdominal viscera, and limb abnormalities. [96]

Prevention

Folate supplements decrease the risk of neural tube defects. Tentative evidence supports the role of L-arginine in decreasing the risk of intrauterine growth restriction.[97]

Screening

Newborn screening tests were introduced in the early 1960s and initially dealt with just two disorders. Since then tandem mass spectrometry, gas chromatography–mass spectrometry, and DNA analysis has made it possible for a much larger range of disorders to be screened. Newborn screening mostly measures metabolite and enzyme activity using a dried blood spot sample.[98] Screening tests are carried out in order to detect serious disorders that may be treatable to some extent.[99] Early diagnosis makes possible the readiness of therapeutic dietary information, enzyme replacement therapy and organ transplants.[100] Different countries support the screening for a number of metabolic disorders (inborn errors of metabolism (IEM)), and genetic disorders including cystic fibrosis and Duchenne muscular dystrophy.[99][101] Tandem mass spectroscopy can also be used for IEM, and investigation of sudden infant death, and shaken baby syndrome.[99]
Screening can also be carried out prenatally and can include obstetric ultrasonography to give scans such as the nuchal scan. 3D ultrasound scans can give detailed information of structural anomalies.

Epidemiology

Congenital anomalies resulted in about 632,000 deaths per year in 2013 down from 751,000 in 1990.[12] The types with the greatest death are congenital heart defects (323,000), followed by neural tube defects (69,000).[12]
Many studies have found that the frequency of occurrence of certain congenital malformations depends on the sex of the child (table).[103][104][105][106][107] For example, pyloric stenosis occurs more often in males while congenital hip dislocation is four to five times more likely to occur in females. Among children with one kidney, there are approximately twice as many males, whereas among children with three kidneys there are

approximately 2.5 times more females. The same pattern is observed among infants with excessive number of ribs, vertebrae, teeth and other organs which in a process of evolution have undergone reduction—among them there are more females. Contrarily, among the infants with their scarcity, there are more males. Anencephaly is shown to occur approximately twice as frequently in females.[108] The number of boys born with 6 fingers is two times higher than the number of girls.[109] Now various techniques are available to detect congenital anomalies in fetus before birth.[110]

About 3% of newborns have a "major physical anomaly", meaning a physical anomaly that has cosmetic or functional significance.[111] Physical congenital abnormalities are the leading cause of infant mortality in the United States, accounting for more than 20% of all infant deaths. Seven to ten percent of all children[*clarification needed*] will require extensive medical care to diagnose or treat a birth defect.[112]

The sex ratio of patients with congenital malformations

Congenital anomaly	Sex ratio, ♂:♀
Defects with female predominance	
Congenital hip dislocation	1 : 5.2;[113] 1 : 5;[114] 1 : 8;[107] 1 : 3.7[115]
Cleft palate	1 : 3[114]
Anencephaly	1 : 1.9;[113] 1 : 2[108]
Craniocele	1 : 1.8[113]
Aplasia of lung	1 : 1.51[113]
Spinal herniation	1 : 1.4[113]
Diverticulum of the esophagus	1 : 1.4[113]
Stomach	1 : 1.4[113]
Neutral defects	
Hypoplasia of the tibia and femur	1 : 1.2[113]
Spina bifida	1 : 1.2[115]
Atresia of small intestine	1 : 1[113]
Microcephaly	1.2 : 1[115]
Esophageal atresia	1.3 : 1;[113] 1.5 : 1[115]
Hydrocephalus	1.3 : 1[115]
Defects with male predominance	
Diverticula of the colon	1.5 : 1[113]
Atresia of the rectum	1.5 : 1;[113] 2 : 1[115]
Unilateral renal agenesis	2 : 1;[113] 2.1 : 1[115]
Schistocystis	2 : 1[113]
Cleft lip and palate	2 : 1;[114] 1.47 : 1[115]
Bilateral renal agenesis	2.6 : 1[113]
Congenital anomalies of the genitourinary system	2.7 : 1[107]
Pyloric stenosis, congenital	5 : 1;[114] 5.4 : 1[107]
Meckel's diverticulum	More common in boys[113]
Congenital megacolon	More common in boys[113]
All defects	1.22 : 1;[116] **1.29 : 1**[107]

- Data[107] obtained on opposite-sex twins. ** — Data[115] were obtained in the period 1983–1994.

P. M. Rajewski and A. L. Sherman (1976) have analyzed the frequency of congenital anomalies in relation to the system of the organism. Prevalence of men was recorded for the anomalies of phylogenetically younger organs and systems.[113]

In respect of an etiology, sexual distinctions can be divided on appearing before and after differentiation of male's gonads during embryonic development, which begins from the eighteenth week. The testosterone level in male embryos thus raises considerably.[117] The subsequent hormonal and physiological distinctions of male and female embryos can explain some sexual differences in frequency of congenital defects.[118] It is difficult to explain the observed differences in the frequency of birth defects between the sexes by the details of the reproductive functions or the influence of environmental and social factors.

United States

The CDC and National Birth Defect Project studied the incidence of birth defects in the US. Key findings include:

- Down syndrome was the most common condition with an estimated prevalence of 14.47 per 10,000 live births, implying about 6,000 diagnoses each year.
- About 7,000 babies are born with a cleft palate, cleft lip or both.

Adjusted National Prevalence Estimates and Estimated Number of Cases in the United States, 2004–2006[119]

Birth Defects	Cases per Births	Estimated Annual Number of Cases	Estimated National Prevalence per 10,000 Live Births (Adjusted for maternal race/ethnicity)
Central nervous system defects			
Anencephaly	1 in 4,859	859	2.06
Spina bifida without anencephaly	1 in 2,858	1460	3.50
Encephalocele	1 in 12,235	341	0.82
Eye defects			

Anophthalmia/ microphthalmia	1 in 5,349	780	1.87
Cardiovascular defects			
Common truncus	1 in 13,876	301	0.72
Transposition of great arteries	1 in 3,333	1252	3.00
Tetralogy of Fallot	1 in 2,518	1657	3.97
Atrioventricular septal defect	1 in 2,122	1966	4.71
Hypoplastic left heart syndrome	1 in 4,344	960	2.30
Orofacial defects			
Cleft palate without cleft lip	1 in 1,574	2651	6.35
Cleft lip with and without cleft palate	1 in 940	4437	10.63
Gastrointestinal defects			
Esophageal atresia/tracheoesophageal fistula	1 in 4,608	905	2.17
Rectal and large intestinal atresia/stenosis	1 in 2,138	1952	4.68
Musculoskeletal defects			
Clubfoot, lower limbs	1 in 250 ~ 1000	...	...
Reduction deformity, upper limbs	1 in 2,869	1454	3.49
Reduction deformity, lower limbs	1 in 5,949	701	1.68
Gastroschisis	1 in 2,229	1871	4.49
Omphalocele	1 in 5,386	775	1.86
Diaphragmatic hernia	1 in 3,836	1088	2.61
Chromosomal anomalies			
Trisomy 13	1 in 7,906	528	1.26
Trisomy 21 (Down syndrome)	1 in 691	6037	14.47
Trisomy 18	1 in 3,762	1109	2.66

Yorum

Anomalili doğumlar: Doğumda defekti olan çocukların sadece genetik değil, diğer nedenlerin de söylenmesi gerektiği vurgusu vardır.

Başlıcaları: Engelli olmaları, fiziksel, zihinsel, gelişimsel boyutta olabilmektedir. Fonksiyonel, işlevsel olduğu gibi, metabolik, dejeneratif boyutta da gelişebilmektedir. Alkol, sigara ve diğer toksik maddelerin gebelikte alınması yanında, şeker hastalığının etkileşimi de önemli boyuttadır.

Oran olarak %3 olduğu ifade edilmekte, klasik boyut olarak %2,5 rakamından söz edilir. Bu majör olanlar içindir ama minör olanlar ise %5-15 gibi 5 kat daha yüksektir.

Konumuzun dışına çıkmamak için burada söz edilmeyecektir, ancak tıp yaklaşımı açısından bunun oluşmaması, engellenmesi tedavinin kat ve kat önünde olmalıdır.

Sosyo-ekonomik nedenler söz konusu olduğunda, bunun bir oluşma nedeninden ziyade, gereken önem, tedbir ve yaklaşımların yapılmaması, gecikmesinden olduğu söylenmelidir.
Bir canlı oluşurken, yaşarken anomalilerin olması doğaldır, bu yaratılışın bir gereğidir, bunu gelişim ve değişimi ilerleme boyutu olarak sağlanması önemli olmalı, çaba bu üzerine yapılanmalıdır.

Neonatal Yoğun Bakım Üniteleri

Tedavi yaklaşımları boyutunda önlem, oluşmamasını sağlamak ve kontrol, sağlıklı bakım ve sonra sorunların ayaktan takibi ile hasta bakımı oluşması beklentidir. Yoğun Bakım ancak sorunlu, yaşaması kritik bir durum için önemli, gündeme gelmektedir.
Neonatoloji kapsamında temel olan ise, yaşamsal boyut olduğu için, ilk planda Yoğun Bakım Ünitelerinin gelmesi de doğaldır. Sorun ötesinde, ölü doğan bir bebeğin yaşatılması için oluşan 3-5 dakika ile, etkin olunamaz ise sekeller oluşmaktadır. Bunun ötesinde yaşatılması ve gelişim sağlanması için günlerce, 100 gün gibi aylarca sürmesi de bir faktördür.

Yenidoğan Yoğun Bakım Üniteleri: Hem eğitim ve hem uygulama açısından bir okul yeri ve uygulama yeri olmaktadır.

NEONATOLOJİ AÇISINDAN: Yoğun Bakımlar ölüm ve sorunların temel giderildiği alanlardır.

Neonatal intensive care unit, Wikipedia[26]

A **neonatal intensive care unit** (**NICU**), also known as an **intensive care nursery** (**ICN**), is an intensive care unit (ICU) specializing in the care of ill or premature newborn infants. The NICU is divided into several areas, including a critical care area for babies who require close monitoring and intervention, an intermediate care area for infants who are stable but still require specialized care, and a step down unit where babies who are ready to leave the hospital can receive additional care before being discharged.[1]
Neonatal refers to the first 28 days of life. Neonatal care, as known as specialized nurseries or intensive care, has been around since the 1960s.[2]
The first American newborn intensive care unit, designed by Louis Gluck, was opened in October 1960 at Yale New Haven Hospital.[3]
NICU is typically directed by one or more neonatologists and staffed by resident physicians, nurses,[4] nurse practitioners, pharmacists, physician assistants, respiratory therapists, and dietitians. Many other ancillary disciplines and specialists are available at larger units.
The term *neonatal* comes from *neo*, "new", and *natal*, "pertaining to birth or origin".[5]
Nursing and neonatal populations
Healthcare institutions have varying entry-level requirements for neonatal nurses. Neonatal nurses are registered nurses (RNs), and therefore must have an Associate of Science in Nursing (ASN) or Bachelor of

Science in Nursing (BSN) degree. Some countries or institutions may also require a midwifery qualification.[6] Some institutions may accept newly graduated RNs having passed the NCLEX exam; others may require additional experience working in adult-health or medical/surgical nursing.[7]

Some countries offer postgraduate degrees in neonatal nursing, such as the Master of Science in Nursing (MSN) and various doctorates. A nurse practitioner may be required to hold a postgraduate degree.[6] The National Association of Neonatal Nurses recommends two years' experience working in a NICU before taking graduate classes.[7]

As with any registered nurse, local licensing or certifying bodies, as well as employers, may set requirements for continuing education.[7]

There are no mandated requirements to becoming an RN in an NICU, although neonatal nurses must have certification as a neonatal resuscitation provider. Some units prefer new graduates who do not have experience in other units, so they may be trained in the specialty exclusively, while others prefer nurses with more experience already under their belt.

Intensive-care nurses undergo intensive didactic and clinical orientation in addition to their general nursing knowledge in order to provide highly specialized care for critical patients. Their competencies include the administration of high-risk medications, management of high-acuity patients requiring ventilator support, surgical care, resuscitation, advanced interventions such as extracorporeal membrane oxygenation or hypothermia therapy for neonatal encephalopathy procedures, as well as chronic-care management or lower acuity cares associated with premature infants such as feeding intolerance, phototherapy, or administering antibiotics. NICU RNs undergo annual skills tests and are subject to additional training to maintain contemporary practice.[*citation needed*]

History

The problem of premature and congenitally ill infants is not a new one. As early as the 17th and 18th centuries, there were scholarly papers published that attempted to share knowledge of interventions.[8][9][10] It was not until 1922, however, that hospitals started grouping the newborn infants into one area, now called the neonatal intensive care unit (NICU).[11]

Before the industrial revolution, premature and ill infants were born and cared for at home and either lived or died without medical intervention.[12] In the mid-nineteenth century, the infant incubator was first developed, based on the incubators used for chicken eggs.[13] Dr. Stephane Tarnier is generally considered to be the father of the incubator (or isolette as it is now known), having developed it in 1880 to attempt to keep premature infants in a Paris maternity ward warm.[12] Other methods had been used before, but this was the first closed model; in addition, he helped convince other physicians that the treatment *helped* premature infants. France became a forerunner in assisting premature infants, in part due to its concerns about a falling birth rate.[12]

After Tarnier retired, Dr. Pierre Budin, followed in his footsteps, noting the limitations of infants in incubators and the importance of breastmilk and the mother's attachment to the child.[14] Budin is known as the father of modern perinatology, and his seminal work *The Nursling* (*Le Nourisson* in French) became the first major publication to deal with the care of the neonate.[15] The incubator was improved in 1890 in Marseilles by docteur Alexandre Lion who founded in 1891 the Œuvre Maternelle des Couveuses d'Enfants in Nice and in January 1896 in Paris.[16][17][18].

Another factor that contributed to the development of modern neonatology was Dr. Martin Couney and his permanent installment of premature babies in incubators at Coney Island. A more controversial figure, he studied under Dr. Budin and brought attention to premature babies and their plight through his display of infants as sideshow attractions at Coney Island and the World's Fair in New York and Chicago in 1933 and 1939, respectively.[13] Infants had also previously been displayed in incubators at the 1897, 1898, 1901, and 1904 World Fairs.[19]

Early years

Doctors took an increasing role in childbirth from the eighteenth century onward. However, the care of newborn babies, sick or well, remained largely in the hands of mothers and midwives. Some baby incubators, similar to those used for hatching chicks, were devised in the late nineteenth century. In the United States, these were shown at commercial exhibitions, complete with babies inside, until 1931. Dr A. Robert Bauer MD at Henry Ford Hospital in Detroit, MI, successfully combined oxygen, heat, humidity, ease of accessibility, and ease of nursing care in 1931.[20] It was not until after the Second World War that **special-care baby units** (**SCBU**s,

pronounced *scaboo*) were established in many hospitals. In Britain, early SCBUs opened in Birmingham and Bristol, the latter set up with only £100. At Southmead Hospital, Bristol, initial opposition from obstetricians lessened after quadruplets born there in 1948 were successfully cared for in the new unit.

Incubators were expensive, so the whole room was often kept warm instead. Cross-infection between babies was greatly feared. Strict nursing routines involved staff wearing gowns and masks, constant hand-washing and minimal handling of babies. Parents were sometimes allowed to watch through the windows of the unit. Much was learned about feeding—frequent, tiny feeds seemed best—and breathing. Oxygen was given freely until the end of the 1950s, when it was shown that the high concentrations reached inside incubators caused some babies to go blind. Monitoring conditions in the incubator, and the baby itself, was to become a major area of research.

The 1960s were a time of rapid medical advances, particularly in respiratory support, that were at last making the survival of premature newborn babies a reality. Very few babies born before thirty-two weeks survived and those who did often had neurological impairments. Herbert Barrie in London pioneered advances in resuscitation of the newborn. Barrie published his seminal paper on the subject in *The Lancet* in 1963.[21] One of the concerns at this time was the worry that using high pressures of oxygen could be damaging to newborn lungs. Barrie developed an underwater safety valve in the oxygen circuit. The tubes were originally made of rubber, but these had the potential to cause irritation to sensitive newborn tracheas: Barrie switched to plastic. This new endotracheal tube, based on Barrie's design, was known as the 'St Thomas's tube'.[22]

Most early units had little equipment, providing only oxygen and warmth, and relied on careful nursing and observation. In later years, further research allowed technology to play a larger role in the decline of infant mortality. The development of pulmonary surfactant, which facilitates the oxygenation and ventilation of underdeveloped lungs, has been the most important development in neonatology to date.[*citation needed*]

Increasing technology

By the 1970s, NICUs were an established part of hospitals in the developed world. In Britain, some early units ran community programmes, sending experienced nurses to help care for premature babies at home. But increasingly technological monitoring and therapy meant special care for babies became hospital-based. By the 1980s, over 90% of births took place in hospital. The emergency dash from home to the NICU with baby in a transport incubator had become a thing of the past, though transport incubators were still needed. Specialist equipment and expertise were not available at every hospital, and strong arguments were made for large, centralised NICUs. On the downside was the long travelling time for frail babies and for parents. A 1979 study showed that 20% of babies in NICUs for up to a week were never visited by either parent. Centralised or not, by the 1980s few questioned the role of NICUs in saving babies. Around 80% of babies born weighing less than 1.5 kg now survived, compared to around 40% in the 1960s. From 1982, pediatricians in Britain could train and qualify in the sub-specialty of neonatal medicine.[*citation needed*]

Not only careful nursing but also new techniques and instruments now played a major role. As in adult intensive-care units, the use of monitoring and life-support systems became routine. These needed special modification for small babies, whose bodies were tiny and often immature. Adult ventilators, for example, could damage babies' lungs and gentler techniques with smaller pressure changes were devised. The many tubes and sensors used for monitoring the baby's condition, blood sampling and artificial feeding made some babies scarcely visible beneath the technology. Furthermore, by 1975, over 18% of newborn babies in Britain were being admitted to NICUs. Some hospitals admitted all babies delivered by Caesarian section or under 2500 g in weight. The fact that these babies missed early close contact with their mothers was a growing concern. The 1980s saw questions being raised about the human and economic costs of too much technology, and admission policies gradually became more conservative.

Changing priorities

NICUs now concentrate on treating very small, premature, or congenitally ill babies. Some of these babies are from higher-order multiple births, but most are still single babies born too early. Premature labour, and how to prevent it, remains a perplexing problem for doctors. Even though medical advancements allow doctors to save low-birth-weight babies, it is almost invariably better to delay such births.

Over the last 10 years or so, SCBUs have become much more 'parent-friendly', encouraging maximum involvement with the babies. Routine gowns and masks are gone and parents are encouraged to help with care as much as possible. Cuddling and skin-to-skin contact, also known as Kangaroo care, are seen as beneficial for

all but the frailest (very tiny babies are exhausted by the stimulus of being handled; or larger critically ill infants). Less stressful ways of delivering high-technology medicine to tiny patients have been devised: sensors to measure blood oxygen levels through the skin, for example; and ways of reducing the amount of blood taken for tests.

Some major problems of the NICU have almost disappeared. Exchange transfusions, in which all the blood is removed and replaced, are rare now. Rhesus incompatibility (a difference in blood groups) between mother and baby is largely preventable, and was the most common cause for exchange transfusion in the past. However, breathing difficulties, intraventricular hemorrhage, necrotizing enterocolitis and infections still claim many infant lives and are the focus of many new and current research projects.

The long-term outlook for premature babies saved by NICUs has always been a concern. From the early years, it was reported that a higher proportion than normal grew up with disabilities, including cerebral palsy and learning difficulties. Now that treatments are available for many of the problems faced by tiny or immature babies in the first weeks of life, long-term follow-up, and minimising long-term disability, are major research areas.

Besides prematurity and extreme low birth-weight, common diseases cared for in a NICU include perinatal asphyxia, major birth defects, sepsis, neonatal jaundice, and infant respiratory distress syndrome due to immaturity of the lungs. In general, the leading cause of death in NICUs is necrotizing enterocolitis. Complications of extreme prematurity may include intracranial hemorrhage, chronic bronchopulmonary dysplasia (see Infant respiratory distress syndrome), or retinopathy of prematurity. An infant may spend a day of observation in a NICU or may spend many months there.

Neonatology and NICUs have greatly increased the survival of very low birth-weight and extremely premature infants. In the era before NICUs, infants of birth weight less than 1,400 grams (3.1 pounds), usually about 30 weeks gestation, rarely survived. Today, infants of 500 grams at 26 weeks have a fair chance of survival. As of 2022, the world record for the lowest gestational age newborn to survive is held by Curtis Zy-Keith Means, who was born on 5 July 2020 in the United States, at 21 weeks and 1-day gestational age, weighing 420 grams.

The NICU environment provides challenges as well as benefits. Stressors for the infants can include continual light, a high level of noise, separation from their mothers, reduced physical contact, painful procedures, and interference with the opportunity to breastfeed. To date there have been very few studies investigating noise reduction interventions in the NICU and it remains uncertain what their effects could be on babies' growth and development.[23] A NICU can be stressful for the staff as well. A special aspect of NICU stress for both parents and staff is that infants may survive, but with damage to the brain, lungs or eyes.[24] when parents arrive at the NICU, they will have the availability to tour the unit and orientation to the various areas and equipment. this tour should include information on the different types of equipment used in the NICU, such as incubators, monitors, and ventilators, and how they help to support the health and well-being of the babies. Parental orientation to the NICU is essential in reducing parental anxiety and improving satisfaction with care.

[25] Effective communication is critical in the NICU. parents will be given information on who their primary point of contact is and how they can communicate with the medical staff caring for their baby. Parents should ask questions when given tour of the NICU just in case anything was misunderstood. The gynecologic and Neonatal nursing found that effective communication between health care providers and parents in the NICU is critical for promoting parental involvement and reducing stress

[26]

NICU rotations are essential aspects of pediatric and obstetric residency programs, but NICU experience is encouraged by other specialty residencies, such as family practice, surgery, pharmacy, and emergency medicine.

Equipment

Incubator

An **incubator** (or *isolette*[27] or *humidicrib*) is an apparatus used to maintain environmental conditions suitable for a neonate (newborn baby). It is used in preterm births or for some ill full-term babies.

Additional items of equipment used to evaluate and treat sick neonates include:

Blood pressure monitor: The blood pressure monitor is a machine that's connected to a small cuff which is wrapped around the arm or leg of the patient. This cuff automatically takes the blood pressure and displays the data for review by care providers.

Oxygen hood: This is a clear box that fits over the baby's head and supplies oxygen. This is used for babies who can still breathe but need some respiratory support.
Ventilator: This is a breathing machine that delivers air to the lungs. Babies who are severely ill will receive this intervention. Typically, the ventilator takes the role of the lungs while treatment is administered to improve lung and circulatory function.

Possible functions of a neonatal incubator are:

- Oxygenation, through oxygen supplementation by head hood or nasal cannula, or even continuous positive airway pressure (CPAP) or mechanical ventilation. Infant respiratory distress syndrome is the leading cause of death in preterm infants,[28] and the main treatments are CPAP, in addition to administering pulmonary surfactant and stabilizing the blood sugar, blood salts, and blood pressure.
- Observation: Modern neonatal intensive care involves sophisticated measurement of temperature, respiration, cardiac function, oxygenation, and brain activity.
- Protection from cold temperature, infection, noise, drafts and excess handling:[29] Incubators may be described as bassinets enclosed in plastic, with climate control equipment designed to keep them warm and limit their exposure to germs.
- Maintaining fluid balance by providing fluid and keeping a high air humidity to prevent too great a loss from skin and respiratory evaporation.[30]

A *transport incubator* is an incubator in a transportable form, and is used when a sick or premature baby is moved, e.g., from one hospital to another, as from a community hospital to a larger medical facility with a proper neonatal intensive-care unit. It usually has a miniature ventilator, cardio-respiratory monitor, IV pump, pulse oximeter, and oxygen supply built into its frame.[29]

Pain management

Many parents with newborns in the NICU have expressed that they would like to learn more about what types of pain their infants are feeling and how they can help relieve that pain. Parents want to know more about things such as; what caused their child's pain, if the pain that we feel is different than what they feel, how to possibly prevent and notice the pain, and how they could help their child through the pain they were struggling with. Another main worry that was mentioned was the long-term effects of their pain. Would it mentally affect the child in the future, or even affect the relationship they have with their parents?[31]

Relieving pain

There are multiple ways to manage pain for infants. If the mother is able to help, holding the infant in kangaroo position or breastfeeding can help calm the baby[32] before a procedure is done. Other simple things that can help ease pain include; allowing the infant to suck on a gloved finger, gently binding the limbs in a flexed position, and creating a quiet and comfortable environment.[33]

Common diagnoses and pathologies in the NICU include:

- Anemia
- Apnea
- Bradycardia
- Bronchopulmonary dysplasia (BPD)
- Hydrocephalus
- Intraventricular hemorrhage (IVH)
- Jaundice
- Necrotizing enterocolitis (NEC)
- Patent ductus arteriosus (PDA)
- Periventricular leukomalacia (PVL)
- Infant respiratory distress syndrome (RDS)
- Retinopathy of prematurity (ROP)
- Neonatal sepsis
- Transient tachypnea of the newborn (TTN)

Levels of care

The concept of designations for hospital facilities that care for newborn infants according to the level of complexity of care provided was first proposed in the United States in 1976.[34] Levels in the United States are designated by the guidelines published by the American Academy of Pediatrics[35] In Britain, the guidelines are issued by The British Association of Perinatal Medicine (BAPM), and in Canada, they are maintained by The Canadian Paediatric Society.

Neonatal care is split into categories or "levels of care". these levels apply to the type of care needed and is determined by the governing body of the area.

India

India has 3-tier system based on weight and gestational age of neonate.[36]

Level I care

Neonates weighing more than 1800 grams or having gestational maturity of 34 weeks or more are categorized under level I care. The care consists of basic care at birth, provision of warmth, maintaining asepsis and promotion of breastfeeding. This type of care can be given at home, subcenter and primary health centre.

Level II care

Neonates weighing 1200-1800 grams or having gestational maturity of 30–34 weeks are categorized under level II care and are looked after by trained nurses and pediatricians. The equipment and facilities used for this level of care include equipment for resuscitation, maintenance of thermoneutral environment, intravenous infusion, gavage feeding, phototherapy and exchange blood transfusion. This type of care can be given at first referral units, district hospitals, teaching institutions and nursing homes.

Level III care

Neonates weighing less than 1200 grams or having gestational maturity of less than 30 weeks are categorized under level III care. The care is provided at apex institutions and regional perinatal centers equipped with centralized oxygen and suction facilities, servo-controlled incubators, vital signs monitor, transcutaneous monitors, ventilators, infusion pumps etc. This type of care is provided by skilled nurses and neonatologists.

United Kingdom

The terminology used in the United Kingdom can be confusing because different criteria are used to designate 'special' and 'intensive' neonatal care locally and nationally.[37]

Level 1 Neonatal Units

Also known as 'Special Care Baby Units' (SCBU). These look after babies who need more care than healthy newborns but are relatively stable and mature. SCBU might provide tube-feeding, oxygen therapy, antibiotics to treat infection and phototherapy for jaundice. In a SCBU, a nurse can be assigned up to four babies to care for.

Level 2 Neonatal Units

Also known as 'Local Neonatal Units', these can look after babies who need more advanced support such as parenteral nutrition and continuous positive airway pressure (CPAP). Confusingly, they may also look after babies who need short-term intensive care such as mechanical ventilation. Babies who will need longer-term or more elaborate intensive care, for example extremely preterm infants, are usually transferred to a Level 3 unit. Babies in a Level 2 unit may be classified for nursing purposes as 'Special Care', 'High Dependency' (HDU) (in which a nurse will be assigned up to two babies) or 'Intensive care' (where nursing is one-to-one, or sometimes even two-to-one).[38]

Level 3 Neonatal Units

Also known as 'Neonatal Intensive Care Units' (NICU) - although Level 2 units may also have their own NICU. These look after the smallest, most premature and most unwell babies and often serve a large geographical region. Therapies such as prolonged mechanical ventilation, therapeutic hypothermia, neonatal surgery and inhaled nitric oxide are usually provided in Level 3 Units, although not every unit has access to all therapies. Some babies being cared for in Level 3 units will require less intensive treatment and will be looked after in HDU or SCBU nurseries on the same site. NHS England recommended in December 2019 that these units should care for at least 100 babies weighing less than 1.5 kg, and usually perform more than 2,000 intensive care days per year.[39]

United States

The definition of a neonatal intensive-care unit (NICU) according to the National Center for Statistics is a "hospital facility or unit staffed and equipped to provide continuous mechanical ventilatory support for a newborn infant".[40] In 2012, the American Academy of Pediatric updated their policy statement delineating the different levels of neonatal care.[41] One major difference in the 2012 updated policy statement from the AAP compared to the 2004 policy statement is the removal of subspeciality nurseries for levels II and III with the addition of a level IV NICU. The four distinct levels of neonatal care defined in the most recent policy statement from the AAP are:

1. **Level I**, well newborn nursery
2. **Level II**, Special care nursery
3. **Level III**, Neonatal intensive-care unit (NICU)
4. **Level IV**, Regional neonatal intensive-care unit (Regional NICU)

Level I (well newborn nursery)

Level I units are typically referred to as the well-baby nursery. **Well newborn nurseries** have the capability to provide neonatal resuscitation at every delivery; evaluate and provide postnatal care to healthy newborn infants; stabilize and provide care for infants born at 35 to 37 weeks' gestation who remain physiologically stable; and stabilize newborn infants who are ill and those born less than 35 weeks' gestation until transfer to a facility that can provide the appropriate level of neonatal care. Required provider types for well newborn nurseries include pediatricians, family physicians, nurse practitioners, and other advanced practice registered nurses.[41]

Level II (special care nursery)

Previously, Level II units were subdivided into 2 categories (level IIA & level IIB) on the basis of their ability to provide assisted ventilation including continuous positive airway pressure.[42] Level II units are also known as **special care nurseries** and have all of the capabilities of a level I nursery.[41] In addition to providing level I neonatal care, Level II units are able to:

- Provide care for infants born ≥32-week gestation and weighing ≥1500 g who have physiologic immaturity or who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis
- Provide care for infants who are feeding and growing stronger or convalescing after intensive care
- Provide mechanical ventilation for a brief duration (<24 h) or continuous positive airway pressure
- Stabilize infants born before 32-week gestation and weighing less than 1500 g until transfer to a neonatal intensive-care facility
- Level II nurseries are required to be managed and staffed by a pediatrician, however many Level II special care nurseries are staffed by neonatologists and neonatal nurse practitioners.[43]

Level III (neonatal intensive-care unit)

The 2004 AAP guidelines subdivided Level III units into 3 categories (level IIIA, IIIB & IIIC).[42] Level III units are required to have pediatric surgeons in addition to care providers required for level II (pediatric hospitalists, neonatologists, and neonatal nurse practitioners) and level I (pediatricians, family physicians, nurse practitioners, and other advanced practice registered nurses). Also, required provider types that must either be on site or at a closely related institution by prearranged consultative agreement include pediatric medical subspecialists, pediatric anesthesiologists, and pediatric ophthalmologists.[41] In addition to providing the care and having the capabilities of level I and level II nurseries, **level III neonatal intensive-care units** are able to:[41]

- Provide sustained life support
- Provide comprehensive care for infants born <32 wks. gestation and weighing <1500 g
- Provide comprehensive care for infants born at all gestational ages and birth weights with critical illness
- Provide prompt and readily available access to a full range of pediatric medical subspecialists, pediatric surgical specialists, pediatric anesthesiologists, and pediatric ophthalmologists
- Provide a full range of respiratory support that may include conventional and/or high-frequency ventilation and inhaled nitric oxide
- Perform advanced imaging, with interpretation on an urgent basis, including computed tomography, MRI, and echocardiography

Level IV (regional NICU)

The highest level of neonatal care provided occurs at **regional NICUs**, or Level IV neonatal intensive-care units. Level IV units are required to have pediatric surgical subspecialists in addition to the care providers required for Level III units.[41] Regional NICUs have all of the capabilities of Level I, II, and III units. In addition to providing the highest level of care, level IV NICUs:

- Are located within an institution with the capability to provide surgical repair of complex congenital or acquired conditions
- Maintain a full range of pediatric medical subspecialists, pediatric surgical subspecialists, and pediatric anesthesiologists at the site
- Facilitate transport and provide outreach education.

Yorum

Yenidoğan Yoğun Bakım Üniteleri: Prematüre ve sorunlu bebeklerin organ sistemleri kendi başlarına yaşayabilmelerini sağlayamadığı için, mutlaka teknolojik desteğe gereksinimler olmaktadır.

Makalede ilk 28 gün diye söz etse de bebeklerin süreçleri daha da uzayabilmektedir.

İlk 1960 yılına oluştuğu ifade edilse de Hacettepe 1966 yılında ilk girmemiz ile, teknolojik aletlerin olmaması ötesinde, Prematüre servisinin olması ve bu ünitenin etkin bir ekip oluşması ile, Hacettepe ilk olma özelliğini taşımaktadır. 1966-72 Tıp eğitimi, 1972-1977 Uzmanlık yaklaşımları açısından Neonatolog olmamız bir tesadüfi durum olmadığı anlaşılacaktır.

Tarihse gelişim: Yurtdışı teknolojik cihazların pahalı olması ötesinde, ülkemizde de tıbbi cihaz üretmekte olan firmalar oluşunca, onlara kuvöz teknik bilgisini, bebek yatağı özelliklerini belirterek, özgün yapılanma olduğu tarafımız açısından bir gurur kaynağıdır. Fototerapi ampullerinin pahalı ve bulunmaması ötesinde, norma floresanların teknik özelliklerinin ODTÜ imkânları ile test edilmesi ve buna göre uyarlanması da bir katkı oluşturmuştur. Bu yaklaşımların ve bilimsel çalışma ile Eskişehir'de Neonatoloji Ünite/Merkezinin oluşturulması, Yenidoğan Yandal Uzmanlığı sağlaması ile tarafıma bir kazanç olmuştur.

Sorunlar, nedenler ve tedavi boyutu bu Makale konusu içinde olmadığı için söz edilmeyecektir. İsteyen kaynaktan okuyabilir.

Bakım Düzeyleri: Birçok ülke kendi teknolojik yapısına göre yaklaşım yapmaktadır. Ülkemizde ise elde edilen başarı, yetişen nesiller ile de katkı sağlandığı için en üst düzeyde olduğu söylenebilir.

NEONATOLOJİ AÇISINDAN ÜNİTELER: Bu Üniteler birbiri içinde olmalı, hatta bir ünite 3-4 düzey içinde olmalıdır. Bebekler iyileşmeleri ile bir üst düzeye çıkarılmalıdır. Kısaca tek değil, kombina olarak yapılandırılmalıdır. Doğumhanelerde kombine olması veya sevk oluşabilmelidir.
Düzey I: Sağlıklı bebeklerin olması ile, Rooming-in denilen anne ile birlikte de yatırılması oluşturulmalıdır. Her doğum evinde olan yapıdır.
Düzey II: Özel bakım gerektiren bebeklerdir.
Düzey III: Yoğun Bakım, ventilasyon uygulanan servislerdir.
Düzey IV: Eskiden Düzey IIIB denilen yaklaşımda, suni kalp ameliyatında olduğu gibi, kalp solunum pompasına bağlanan bebeklere imkân sunan teknolojiye sahip ünitelerdir.
Bu yaklaşımlarda Neonatoloji Uzmanı gerekliliği, Yoğun Bakım şart iken, diğerlerinde de sertifikasyonu sağlık elemanı olmalıdır. Doğum ve bebekler ile ilgilenmek için, anestezist olsa bile sertifikasyonu olmalıdır.

Neonatoloji de Kalıp/Standartlar değil, yol göstericiler vardır

Bilimsel yaklaşım gerekir, aynı zamanda Kanıta Dayalı yaklaşım da zorunluluktur. Bunların hepsi belirli bir kalıp içinde eğitimde verilmektedir. Ancak uygulamada boyut farklı olmaktadır.

Her olgu ve her durum farklı ve bu açıdan buna göre uyarlama yapılmalıdır.

Akciğeri açmak için ne kadar basınç gerekir? 60-70 cm Su basıncı gerekebilir. Peki ne kadar verelim? Hasaya bak, akciğerin açılmasına bak ve buna göre nefes ver.
Bunun öğrenilmesi için, daha önceden uzun 60 cm uzunlukta bir vazo ile bunu öğrenmek gerekir. Burada aletten söz edilmemesi, alet ile geri direnç anlaşılması zor olduğu için, tarafımdan ağızdan ağıza yapılmakta, sonda ile verilmektedir.
Aynı şekilde kaç mL verileceği de su dolu bir vazo içinde ölçülebilir bir miktar ile verilmesi, kabarcık olarak görülmesidir.
Eski dönemlerde 1970 yıllarında basınç kontrollü cihazlar olmadığı için, bir 10-15 cm boyutunda bir kap ile ayarlanmakta, fazla gelen dışarı kabarcık olarak çıkması sağlanmakta idi. Kısaca su altı bir düzen oluşturulmakta idi.
Nem durumu da odada kaynatılan bir çay sistemi ile oluşturulmakta idi.
Bu şekilde buluşlar ile, yaratılış ve bilime dayanan boyutlar ile bugüne gelinmiştir.

Doğru nedir ve ne yapmalıyım

Etik sorgusu

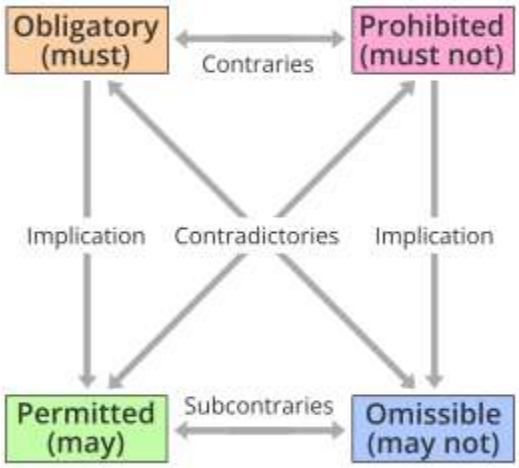
Etik bireylerin algısına göre farklı oluşmaktadır. Kimi ahlak olarak kural ve topluma göre yaptırmaları gerekçe tutar, kimi de bildirgeler temelinde gerçekliği algılar.
Örnek olarak Groningen Protokolü söz konusu edilebilir, ki yaşam hakkını, 1 yaşına kadar bir ortadan kaldırabilme, hem de aile rızasına bırakılması belirtilmektedir. Gerekçe de tedavi ve giderilmesi olanaksız bir yaşam olmasıdır. Buna karşın Ülkemizde engelli olanların da yaşam hakkı olduğuna dair Kanun oluşturulmuştur. Ötenazi de ne şekilde olursa olsun kasıtlı öldürmeye girmektedir. Avrupa İnsan Hakları da aynı boyutta olduğu da gözlenmektedir.

Öncelikle etik kavramını irdelemek yerinde olacaktır.

Ethics, Wikipedia[27]

Ethics or **moral philosophy** is the philosophical study of moral phenomena. It investigates normative questions about what people ought to do or which behavior is morally right. It is usually divided into three major fields: normative ethics, applied ethics, and metaethics.
Normative ethics tries to discover and justify universal principles that govern how people should act in any situation. According to consequentialists, an act is right if it leads to the best consequences. Deontologists hold that morality consists in fulfilling duties, like telling the truth and keeping promises. Virtue theorists see the manifestation of virtues, like courage and compassion, as the fundamental principle of morality. Applied ethics examines concrete ethical problems in real-life situations, for example, by exploring the moral implications of the universal principles discovered in normative ethics within a specific domain. Bioethics studies moral issues associated with living organisms including humans, animals, and plants. Business ethics investigates how ethical principles apply to corporations, while professional ethics focuses on what is morally required of members of different professions. Metaethics is a metatheory that examines the underlying assumptions and concepts of ethics. It asks whether moral facts have mind-independent existence, whether moral statements can be true, how it is possible to acquire moral knowledge, and how moral judgments motivate people.
Ethics is closely connected to value theory, which studies what value is and what types of value there are. Two related empirical fields are moral psychology, which investigates psychological moral processes, and descriptive ethics, which provides value-neutral descriptions of the dominant moral codes and beliefs in different societies.

The history of ethics started in the ancient period with the development of ethical principles and theories in ancient Egypt, India, China, and Greece. During the medieval period, ethical thought was strongly influenced by religious teachings. In the modern period, this focus shifted to a more secular approach concerned with moral experience, practical reason, and the consequences of actions. An influential development in the 20th century was the emergence of metaethics.



Ethics is concerned with the moral status of entities, for example, whether an act is obligatory or prohibited.[1]

Definition

Ethics, also referred to as moral philosophy, is the study of moral phenomena. It is one of the main branches of philosophy and investigates the nature of morality and the principles that govern the moral evaluation of conduct, character traits, and institutions. It examines what obligations people have, what behavior is right and wrong, and how to lead a good life. Some of its key questions are "How should one live?" and "What gives meaning to life?".[3]

The domain of morality is a normative field governing what people ought to do rather than what they actually do, what they want to do, or what social conventions require. As a rational and systematic field of inquiry, ethics studies practical reasons why people should act one way rather than another. Most ethical theories seek universal principles that express a general standpoint of what is objectively right and wrong.[4] In a slightly different sense, the term "ethics" can also refer to individual ethical theories in the form of a rational system of moral principles, such as Aristotelian ethics, and to a moral code that certain societies, social groups, or professions follow, as in Protestant work ethic and medical ethics.[5]

The terms "ethics" and "morality" are usually used interchangeably but some philosophers draw a distinction between the two. According to one view, morality is restricted to the question of what moral obligations people have while ethics is a wider term that takes additional considerations into account, such as what is good or how to lead a meaningful life. Another difference is that codes of conduct pertaining to specific areas, such as the business and environment, are usually termed "ethics" rather than morality, as in business ethics and environmental ethics.[6]

As a philosophical discipline, ethics is usually divided into normative ethics, applied ethics, and metaethics. Normative ethics tries to find and justify universal principles of moral conduct. Applied ethics examines the consequences of those principles in specific domains of practical life. Metaethics is a metatheory that studies underlying assumptions and concepts, such as what the nature of morality is and whether moral judgments can be objectively true.[7]

The English word *ethics* has its roots in the Ancient Greek word *êthos* (ἦθος) meaning "character, personal disposition". This word gave rise to the Ancient Greek word *ēthikós* (ἠθικός), which was translated into Latin as *ethica* and entered the English language in the 15th century through the Old French term *éthique*.[8]

Normative ethics

Normative ethics is the philosophical study of ethical conduct and investigates the fundamental principles of morality. It asks questions like "How should one live?" and "How should people act?". Its main goal is to discover and justify general answers to these questions. To do so, it usually seeks universal or domain-independent principles that determine whether an act is right or wrong.[9] For example, given the particular

impression that it is wrong to set a child on fire for fun, normative ethics aims to find more general principles that explain why this is the case, like the principle that one should not cause extreme suffering to the innocent, which may itself be explained in terms of a more general principle.[10] Many theories of normative ethics try not only to provide principles to assess the moral value of actions but aim additionally to guide behavior by helping people make moral decisions.[11]

Theories in normative ethics state how people should act or what kind of behavior is correct. They do not aim to describe how people normally act, what moral beliefs ordinary people have, how these beliefs change over time, or what ethical codes are upheld in certain social groups. These topics belong to descriptive ethics and are studied in fields like anthropology, sociology, and history rather than normative ethics.[12] Another contrast is with applied ethics, which investigates right moral conduct within a specific domain rather than general moral principles studied by normative ethics.[13]

Some systems of normative ethics arrive at a single principle that covers all possible cases while others encompass a small set of basic rules that address all or at least the most important moral considerations.[14] One difficulty for systems with several basic principles is that these principles may in some cases conflict with each other and lead to ethical dilemmas.[15]

Different theories in normative ethics suggest different principles as the foundation of morality. The three most influential schools of thought are consequentialism, deontology, and virtue ethics.[16] These schools are usually presented as exclusive alternatives but depending on how they are defined, they can overlap and do not necessarily exclude one another.[17] In some cases, they differ concerning which acts they see as right or wrong. In other cases, they recommend the same course of action but provide different justifications for why it is right.[18]

Consequentialism

Consequentialism, also referred to as teleological ethics,[19][a] holds that morality depends on consequences. According to the most common view, an act is right if it brings about the best future. This means that there is no alternative course of action that has better consequences.[21] A key aspect of consequentialist theories is that they provide a characterization of what is good and then define what is right in terms of what is good.[22]

Consequentialists usually understand the consequences of an action in a very wide sense that includes the totality of its effects. This is based on the idea that actions make a difference to the world by bringing about a causal chain of events that would not have existed otherwise.[23] A core intuition behind consequentialism is that what matters is not the past but the future and that it should be shaped to result in the best possible outcome.[24]

The act itself is usually not seen as part of the consequences. This means that if an act has intrinsic value and disvalue, it is not included as a relevant factor. Some consequentialists try to avoid this complication by including the act itself as part of the consequences. A related approach is to characterize consequentialism not in terms of consequences but in terms of outcomes with outcome being defined as the act together with its consequences.[25]

Most forms of consequentialism are agent-neutral. This means that the value of consequences is assessed from a neutral perspective, i.e., acts should have consequences that are good in general and not just good for the agent. It is controversial whether agent-relative moral theories, like ethical egoism, should be considered as types of consequentialism.[26]

Types

There are many different types of consequentialism. They differ from each other based on what type of entity they evaluate, how they determine whether a consequence is good, and what consequences they take into consideration.[27] Most theories assess the moral value of acts. But consequentialism can also be used to evaluate motives, character traits, rules, and policies.[28]

Many consequentialists assess the value of consequences based on whether they promote happiness or suffering. But there are also alternative evaluative principles, such as desire satisfaction, autonomy, freedom, knowledge, friendship, beauty, and self-perfection.[29] Some forms of consequentialism hold that there is only a single source of value.[30] The most prominent among them is utilitarianism, which states that the moral value of acts only depends on the pleasure they cause.[31] An alternative approach is to hold that there are many different sources of value. According to this view, all sources of value contribute to one overall value.[30] Traditionally, consequentialists were only concerned with the sum total of value or the aggregate good.

A more recently developed view is that the distribution of value also matters. It states, for example, that an equal distribution of goods is overall better than an unequal distribution even if the aggregate good is the same.[32]

There are various disagreements about what consequences should be assessed. An important distinction is between act and rule consequentialism. According to act consequentialism, the consequences of an act determine the moral value of this act. This means that there is a direct relation between the consequences of an act and its moral value. Rule consequentialism, by contrast, holds that an act is right if it follows a certain set of rules. Rule consequentialism uses considerations of consequences to determine which rules should be followed: people should follow the rules that have the best consequences in a community that accepts them. This implies that the relation between act and consequences is indirect. For example, if a prohibition to lie is part of the best rules then, according to rule consequentialism, a person should not lie even in a particular case where lying would result in the best possible consequences.[33]

Another disagreement on the level of consequences is between actual and expected consequentialism. According to the traditional view, only the actual consequences of an act affect its moral value. One difficulty of this view is that many consequences cannot be known in advance. This means that in some cases, even well-planned and intentioned acts are morally wrong if they inadvertently lead to negative outcomes. An alternative perspective states that what matters are not the actual consequences but the expected consequences. This view takes into account that when deciding what to do, people have to rely on their very limited knowledge of the total consequences of their actions. According to this view, a course of action has positive moral value despite leading to an overall negative outcome if it had the highest expected value, for example, because the negative outcome could not be anticipated or was very unlikely.[34]

Another difference is between maximizing and satisficing consequentialism. According to maximizing consequentialism, only the best possible act is morally permitted. This means that acts with positive consequences are wrong if there are alternatives with even better consequences. One criticism of maximizing consequentialism is that it demands too much by requiring that people do significantly more than they are socially expected to. For example, if the best action for someone with a good salary would be to donate 70% of their income to charity, it would be morally wrong for them to only donate 65%. Satisficing consequentialism, by contrast, only requires that an act is "good enough" even if it is not the best possible alternative. According to this view, it is possible to do more than one is morally required to do, a state known as supererogation.[35]

One of the earliest forms of consequentialism is found in ancient Chinese philosophy where Mohists argued that political action should promote justice as a means to increase the welfare of the people.[36]

Utilitarianism

The most well-known form of consequentialism is utilitarianism. In its classical form, it is an act consequentialism that sees happiness as the only source of intrinsic value. This means that an act is morally right if it produces "the greatest good for the greatest number" by increasing happiness and reducing suffering. Utilitarians do not deny that other things also have value, like health, friendship, and knowledge. However, they deny that these things have intrinsic value. Instead, they hold that they have extrinsic value because they affect happiness and suffering. In this regard, they are desirable as a means but, unlike happiness, not desirable as an end.[37] The view that pleasure is the only thing with intrinsic value is called ethical or evaluative hedonism.[38]

Utilitarianism was initially formulated by Jeremy Bentham and further developed by John Stuart Mill. Bentham introduced the hedonic calculus to assess the value of consequences. Two key aspects of the hedonic calculus are the intensity and the duration of pleasure. According to this view, a pleasurable experience has a high value if it has a high intensity and lasts for a long time. Some critics of Bentham's utilitarianism argued that it is a "philosophy of swine" whose focus on the intensity of pleasure promotes an immoral lifestyle centered around indulgence in sensory pleasures. Mill responded to this criticism by distinguishing between higher and lower pleasures. He stated that higher pleasures, like the intellectual pleasure of reading a book, are more valuable than lower pleasures, like the sensory pleasure of food and drink, even if their intensity and duration are the same.[39] Today, there are many variations of utilitarianism, including the difference between act and rule utilitarianism and between maximizing and satisficing utilitarianism.[40]

Deontology

Deontology assesses the moral rightness of actions based on a set of norms or principles. These norms describe certain requirements or duties that all actions need to follow.[41] Examples are that one should tell the truth,

keep promises, and not intentionally harm others.[42] Unlike consequentialists, deontologists hold that the validity of general moral principles does not depend on their consequences. They state that these principles should be followed in every case since they express how actions are inherently right or wrong. For example, according to David Ross, it is wrong to break a promise even if no harm comes from it.[43] In this regard, deontologists often allow that there is a gap between what is right and what is good.[22] Many tend to follow a negative approach by holding that certain acts are forbidden under any circumstances.[44]

Agent-centered and patient-centered

Agent-centered deontological theories focus on the role of moral agency and following one's duties. They are often interested in the motives and intentions for which people act and emphasize the importance of doing something for the right reasons. They are often agent-relative, meaning that the reasons for which people should act depend on personal circumstances. For example, a parent has a special obligation to their child while a stranger does not have this kind of obligation toward a child they do not know. Patient-centered theories, by contrast, emphasize the rights of the people affected by the action. An example is the requirement to treat other people as ends and not merely as a means to an end.[45] This requirement can be used to argue, for example, that it is wrong to kill a person against their will even if this act would save the life of several others. Patient-centered deontological theories are usually agent-neutral, meaning that they apply equally to everyone in a situation, regardless of their specific role or position.[46]

Kantianism

Immanuel Kant is one of the most well-known deontologists.[47] He insists that moral action should not be guided by situation-dependent means-end reasoning to achieve some kind of fixed good, such as happiness. Instead, he argues that there are certain moral principles that apply to every situation independent of means-end relations. Kant uses the term categorical imperative for these principles and holds that they are non-empirical and universal laws that have their source in the structure of practical reason and apply to all rational agents. For Kant, to act morally is to act in accordance with reason as expressed by these principles.[48] He sees immoral actions as irrational by going against the fundamental principles of practical reason.[49]

Kant provided several formulations of the categorical imperative. One emphasizes the universal nature of reason and states that people should only follow maxims that could become universal laws applicable to everyone. This means that the person would want everyone else also to follow this maxim. Another formulation states that one should treat other people always as ends in themselves and never as mere means to an end. This formulation focuses on respecting and valuing other people for their own sake rather than using them in the pursuit of personal goals.[50]

In either case, Kant holds that what matters is to have a good will. A person has a good will if they respect the moral law and form their intentions and motives in accordance with it. For Kant, actions motivated in such a way are unconditionally good, meaning that they are good even in cases where they result in undesirable consequences.[51]

Divine command theory, contractualism, and discourse ethics

Divine command theory sees God as the source of morality. It states that moral laws are divine commands and that to act morally is to obey and follow God's will. While all divine command theorists agree that morality depends on God, there are disagreements about the precise content of the divine commands, and theorists belonging to different religions tend to propose different moral laws.[52] For example, Christian and Jewish divine command theorists may argue that the Ten Commandments express God's will[53] while Muslims may reserve this role for the teachings of the Quran.[54]

Contractualists reject the reference to God as the source of morality and argue instead that morality is based on an explicit or implicit social contract between humans. They state that actual or hypothetical consent to this contract is the source of moral norms and duties. To determine which duties people, have, contractualists often rely on a thought experiment about what rational people under ideal circumstances would agree on. For example, if they would agree that people should not lie then there is a moral obligation to refrain from lying. Because of its reliance on consent, contractualism is often understood as a patient-centered form of deontology.[55][b]

Discourse ethics also focuses on social agreement on moral norms but holds that this agreement is based on communicative rationality. It aims to arrive at moral norms for pluralistic modern societies that encompass

a diversity of viewpoints. A universal moral norm is seen as valid if all rational discourse participants do or would approve. This way, morality is not imposed by a single moral authority but arises from the moral discourse within society. This discourse should follow certain requirements characteristic of an ideal speech situation. One of its key aspects is that discourse participants are free to voice their different opinions without coercion but are at the same time required to justify them using rational argumentation.[57]

Virtue ethics

The main concern of virtue ethics is how virtues are expressed in actions. As such, it is neither directly interested in the consequences of actions nor in universal moral duties.[58] Virtues are positive character traits, like honesty, courage, kindness, and compassion. They are usually understood as dispositions to feel, decide, and act in a certain manner by being wholeheartedly committed to this manner. Virtues contrast with vices, which are their harmful counterparts.[59]

Virtue theorists usually hold that the mere possession of virtues by itself is not sufficient. Instead, people should manifest virtues in their actions. An important factor in this regard is the practical wisdom, also referred to as phronesis, of knowing, when, how, and which virtue to express. For example, a lack of practical wisdom may lead courageous people to perform morally wrong actions by taking unnecessary risks that should better be avoided.[60]

Different types of virtue ethics differ concerning how they understand virtues and their role in practical life. Eudaimonism is the classical view and draws a close relation between virtuous behavior and happiness. It states that people flourish by living a virtuous life. Eudaimonist theories often hold that virtues are positive potentials residing in human nature and that actualizing these potentials results in leading a good and happy life.[61] Agent-based theories, by contrast, see happiness only as a side effect and focus instead on the motivational and dispositional characteristics that are expressed while acting. This is often combined with the idea that one can learn from exceptional individuals what those characteristics are.[61] Feminist ethics of care constitute another form of virtue ethics. They emphasize the importance of interpersonal relationships and hold that benevolence by caring for the well-being of others is one of the key virtues.[62]

Influential schools of virtue ethics in ancient philosophy were Aristotelianism and Stoicism. According to Aristotle, each virtue is a golden mean between two types of vices: excess and deficiency. For example, courage is a virtue that lies between the deficient state of cowardice and the excessive state of recklessness. Aristotle held that virtuous action leads to happiness and makes people flourish in life.[63] The Stoics believed that people can achieve happiness through virtue alone. They stated that people are happy if they are in a peaceful state of mind that is free from emotional disturbances. They advocated rationality and self-mastery to achieve this state.[64] In the 20th century, virtue ethics experienced a resurgence thanks to philosophers such as Elizabeth Anscombe, Philippa Foot, Alasdair MacIntyre, and Martha Nussbaum.[65]

Others

There are many other schools of normative ethics in addition to the three main traditions. Pragmatist ethics focuses on the role of practice and holds that one of the key tasks of ethics is to solve practical problems in concrete situations. It has certain similarities to utilitarianism and its focus on consequences but concentrates more on how morality is embedded in and relative to social and cultural contexts. Pragmatists tend to give more importance to habits than to conscious deliberation and understand morality as a habit that should be shaped in the right way.[66]

Postmodern ethics agrees with pragmatist ethics about the cultural relativity of morality. It rejects the idea that there are objective moral principles that apply universally to all cultures and traditions. It asserts that there is no one coherent ethical code since morality itself is irrational and humans are morally ambivalent beings.[67]

Ethical egoism is the view that people should act in their self-interest or that an action is morally right if the person acts for their own benefit. It differs from psychological egoism, which states that people actually follow their self-interest without claiming that they should do so. Ethical egoists may act in accordance with commonly accepted moral expectations and benefit other people, for example, by keeping promises, helping friends, and cooperating with others. However, they do so only as a means to promote their self-interest. Ethical egoism is often criticized as an immoral and contradictory position.[68]

Normative ethics has a central place in most religions. Key aspects of Jewish ethics are to follow the 613 commandments of God according to the *Mitzvah* duty found in the Torah and to take responsibility for societal welfare.[69] Christian ethics puts less emphasis on following precise laws and teaches instead the practice of self-

less love, such as the Great Commandment to "love your neighbor as yourself".[70] The Five Pillars of Islam constitute a basic framework of Muslim ethics and focus on the practice of faith, prayer, charity, fasting during Ramadan, and pilgrimage to Mecca.[71] Buddhists emphasize the importance of compassion and loving-kindness towards all sentient entities.[72] A similar outlook is found in Jainism, which has non-violence as its principal virtue.[73] Duty is a central aspect of Hindu ethics and is about fulfilling social obligations, which may vary depending on a person's social class and stage of life.[74] Confucianism places great emphasis on harmony in society and sees benevolence as a key virtue.[75] Taoism extends the importance of living in harmony to the whole world and teaches that people should practice effortless action by following the natural flow of the universe.[76]

Applied ethics

Applied ethics, also known as practical ethics,[77] is the branch of ethics and applied philosophy that examines concrete moral problems encountered in real-life situations. Unlike normative ethics, it is not concerned with discovering or justifying universal ethical principles. Instead, it studies how those principles can be applied to specific domains of practical life, what consequences they have in these fields, and whether other considerations are relevant.[78]

One of the main challenges of applied ethics is to breach the gap between abstract universal theories and their application to concrete situations. For example, an in-depth understanding of Kantianism or utilitarianism is usually not sufficient to decide how to analyze the moral implications of a medical procedure. One reason is that it may not be clear how the procedure affects the Kantian requirement of respecting everyone's personhood and what the consequences of the procedure are in terms of the greatest good for the greatest number.[79] This difficulty is particularly relevant to applied ethicists who employ a top-down methodology by starting from universal ethical principles and applying them to particular cases within a specific domain.[80] A different approach is to use a bottom-up methodology, which relies on many observations of particular cases to arrive at an understanding of the moral principles relevant to this particular domain.[81] In either case, inquiry into applied ethics is often triggered by ethical dilemmas to solve cases in which a person is subject to conflicting moral requirements.[82]

Applied ethics covers issues pertaining to both the private sphere, like right conduct in the family and close relationships, and the public sphere, like moral problems posed by new technologies and international duties toward future generations.[83] Major branches include bioethics, business ethics, and professional ethics. There are many other branches and their domains of inquiry often overlap.[84]

Bioethics

Bioethics is a wide field that covers moral problems associated with living organisms and biological disciplines.[85] A key problem in bioethics concerns the moral status of entities and to what extent this status depends on features such as consciousness, being able to feel pleasure and pain, rationality, and personhood. These differences concern, for example, how to treat non-living entities like rocks and non-sentient entities like plants in contrast to animals and whether humans have a different moral status than other animals.[86] According to anthropocentrism, only humans have a basic moral status. This implies that all other entities only have a derivative moral status to the extent that they affect human life. Sentientism, by contrast, extends an inherent moral status to all sentient beings. Further positions include biocentrism, which also covers non-sentient lifeforms, and ecocentrism, which states that all of nature has a basic moral status.[87]

Bioethics is relevant to various aspects of life and to many professions. It covers a wide range of moral problems associated with topics like abortion, cloning, stem cell research, euthanasia, suicide, animal testing, intensive animal farming, nuclear waste, and air pollution.[88]

Bioethics can be divided into medical ethics, animal ethics, and environmental ethics based on whether the ethical problems relate to humans, other animals, or nature in general.[89] Medical ethics is the oldest branch of bioethics and has its origins in the Hippocratic Oath, which establishes ethical guidelines for medical practitioners like a prohibition to harm the patient.[90] A central topic in medical ethics concerns issues associated with the beginning and the end of life. One debate focuses on the question of whether a fetus is a full-fledged person with all the rights associated with this status. For example, some proponents of this view argue that abortion is a form of murder.[91] In relation to the end of life, there are ethical dilemmas concerning whether a person has a right to end their own life in cases of terminal illness and whether a medical practitioner

may assist them in doing so.[92] Other topics in medical ethics include medical confidentiality, informed consent, research on human beings, organ transplantation, and access to healthcare.[90]

Animal ethics examines how humans should treat other animals. An influential consideration in this field emphasizes the importance of animal welfare while arguing that humans should avoid or minimize the harm done to animals. There is wide agreement that it is wrong to torture animals for fun. The situation is more complicated in cases where harm is inflicted on animals as a side effect of the pursuit of human interests. This happens, for example, during factory farming, when using animals as food, and for research experiments on animals.[93] A key topic in animal ethics is the formulation of animal rights. Animal rights theorists assert that animals have a certain moral status and that humans have an obligation to respect this status when interacting with them.[94] Examples of suggested animal rights include the right to life, the right to be free from unnecessary suffering, and the right to natural behavior in a suitable environment.[95]

Environmental ethics deals with moral problems relating to the natural environment including animals, plants, natural resources, and ecosystems. In its widest sense, it also covers the whole biosphere and the cosmos.[96] In the domain of agriculture, this concerns questions like under what circumstances it is acceptable to clear the vegetation of an area to use it for farming and the implications of using genetically modified crops.[97] On a wider scale, environmental ethics addresses the problem of global warming and how people are responsible for this both on an individual and a collective level. Environmental ethicists often promote sustainable practices and policies directed at protecting and conserving ecosystems and biodiversity.[98]

Business and professional ethics

Business ethics examines the moral implications of business conduct and investigates how ethical principles apply to corporations and organizations.[99] A key topic is corporate social responsibility, which is the responsibility of corporations to act in a manner that benefits society at large. Corporate social responsibility is a complex issue since many stakeholders are directly and indirectly involved in corporate decisions, such as the CEO, the board of directors, and the shareholders. A closely related topic concerns the question of whether corporations themselves, and not just their stakeholders, have moral agency.[100] Business ethics further examines the role of truthfulness, honesty, and fairness in business practices as well as the moral implications of bribery, conflict of interest, protection of investors and consumers, worker's rights, ethical leadership, and corporate philanthropy.[99]

Professional ethics is a closely related field that studies ethical principles applying to members of a specific profession, like engineers, medical doctors, lawyers, and teachers. It is a diverse field since different professions often have different responsibilities.[101] Principles applying to many professions include that the professional has the required expertise for the intended work and that they have personal integrity and are trustworthy. Further principles are to serve the interest of their target group, follow client confidentiality, and respect and uphold the client's rights, such as informed consent.[102] More precise requirements often vary between professions. A cornerstone of engineering ethics is to protect the public's safety, health, and well-being.[103] Legal ethics emphasizes the importance of respect for justice, personal integrity, and confidentiality.[104] Key factors in journalism ethics include accuracy, truthfulness, independence, and impartiality as well as proper attribution to avoid plagiarism.[105]

Others

Many other fields of applied ethics are discussed in the academic literature. Communication ethics covers moral principles in relation to communicative conduct. Two key issues in it are freedom of speech and speech responsibility. Freedom of speech concerns the ability to articulate one's opinions and ideas without the threats of punishment and censorship. Speech responsibility is about being accountable for the consequences of communicative action and inaction.[106] A closely related field is information ethics, which focuses on the moral implications of creating, controlling, disseminating, and using information.[107]

The ethics of technology has implications for both communication ethics and information ethics in regard to communication and information technologies. In its widest sense, it examines the moral issues associated with any artifacts created and used for instrumental means, from simple artifacts like spears to high-tech computers and nanotechnology.[108] Central topics in the ethics of technology include the risks associated with creating new technologies, their responsible use, and questions surrounding the issue of human enhancement through technological means, such as prosthetic limbs, performance-enhancing drugs, and genetic

enhancement.[109] Important subfields include computer ethics, ethics of artificial intelligence, machine ethics, ethics of nanotechnology, and nuclear ethics.[110]

The ethics of war investigates moral problems in relation to war and violent conflicts. According to just war theory, waging war is morally justified if it fulfills certain conditions. They are commonly divided into requirements concerning the cause to initiate violent activities, such as self-defense, and the way those violent activities are conducted, such as avoiding excessive harm to civilians in the pursuit of legitimate military targets.[111] **Military ethics** is a closely related field that is interested in the conduct of military personnel. It governs questions of the circumstances under which they are permitted to kill enemies, destroy infrastructure, and put the lives of their own troops at risk.[112] Additional topics are recruitment, training, and discharge of military personnel as well as the procurement of military equipment.[113]

Further fields of applied ethics include political ethics, which examines the moral dimensions of political decisions,[114] educational ethics, which covers ethical issues related to proper teaching practices,[115] and sexual ethics, which addresses the moral implications of sexual behavior.[116]

Metaethics

Metaethics is the branch of ethics that examines the nature, foundations, and scope of moral judgments, concepts, and values. It is not interested in what actions are right or wrong but in what it means for an action to be right or wrong and whether moral judgments are objective and can be true at all. It further examines the meaning of morality and moral terms.[117] Metaethics is a metatheory that operates on a higher level of abstraction than normative ethics by investigating its underlying background assumptions. Metaethical theories usually do not directly take substantive positions regarding normative ethical theories but they can influence them nonetheless by questioning the foundational principles on which they rest.[118]

Metaethics overlaps with various branches of philosophy. On the level of ontology, it is concerned with the metaphysical status of moral values and principles.[119] In relation to semantics, it asks what the meaning of moral terms is and whether moral statements have a truth value.[120] The epistemological side of metaethics discusses whether and how people can acquire moral knowledge.[121] Metaethics further covers psychological and anthropological considerations in regard to how moral judgments motivate people to act and how to explain cross-cultural differences in moral assessments.[122]

Basic concepts

Metaethics examines basic ethical concepts and their relations. Ethics is concerned with normative statements about what ought to be the case, in contrast to descriptive statements, which are about what is the case.[123] Duties and obligations express requirements of what people ought to do.[124] Duties are sometimes defined as counterparts of the rights that always accompany them. According to this view, someone has a duty to benefit another person if this other person has the right to receive that benefit.[125] Obligation and permission are contrasting terms that can be defined through each other: to be obligated to do something means that one is not permitted not to do it and to be permitted to do something means that one is not obligated not to do it.[126][c] Some theorists define obligations in terms of values, such as the good. When used in a general sense, good contrasts with bad. In relation to people and their intentions, the term evil rather than bad is often employed.[127]

Obligations are used to assess the moral status of actions, motives, and character traits.[128] An action is morally right if it is in tune with the obligations and morally wrong if it violates the obligations.[129] Supererogation is a special moral status that applies to cases in which the agent does more than is morally required of them.[130] To be morally responsible for an action usually means that the person possessed and exercised certain capacities or some form of control. People who are morally responsible deserve evaluative attitudes from others, such as praise or blame.[131]

Realism, relativism, and nihilism

A key debate in metaethics concerns the ontological status of morality and encompasses the question of whether ethical values and principles form part of reality. It examines whether moral properties exist as objective features independent of the human mind and culture rather than as subjective constructs or expressions of personal preferences and cultural norms.[132]

Moral realists accept the claim that there are objective moral facts. This view implies that moral values are mind-independent aspects of reality and that there is an absolute fact about whether a given action is right or wrong. A consequence of this view is that moral requirements have the same ontological status as non-moral facts: it

is an objective fact whether there is an obligation to keep a promise just as there is an objective fact whether a thing has a black color.[132] Moral realism is often associated with the claim that there are universal ethical principles that apply equally to everyone.[133] It implies that if two people disagree about a moral evaluation then at least one of them is wrong. This observation is sometimes taken as an argument against moral realism since moral disagreement is widespread and concerns most fields.[134]

Moral relativists reject the idea that morality is an objective feature of reality. They argue instead that moral principles are human inventions. This means that a behavior is not objectively right or wrong but only subjectively right or wrong relative to a certain standpoint. Moral standpoints may differ between persons, cultures, and historical periods.[135] For example, moral statements like "slavery is wrong" or "suicide is permitted" may be true in one culture and false in another.[136] This position can be understood in analogy to Einstein's theory of relativity, which states that the magnitude of physical properties like mass, length, and duration depends on the frame of reference of the observer.[137] Some moral relativists hold that moral systems are constructed to serve certain goals such as social coordination. According to this view, different societies and different social groups within a society construct different moral systems based on their diverging purposes.[138] A different explanation states that morality arises from moral emotions, which people project onto the external world.[139]

Moral nihilists deny the existence of moral facts. They are opposed to both objective moral facts defended by moral realism and subjective moral facts defended by moral relativism. They believe that the basic assumptions underlying moral claims are misguided. Some moral nihilists, like Friedrich Nietzsche, conclude from this that anything is allowed. A slightly different view emphasizes that moral nihilism is not itself a moral position about what is allowed and prohibited but the rejection of any moral position.[140] Moral nihilism agrees with moral relativism that there are different standpoints according to which people judge actions to be right or wrong. However, it disagrees that this practice involves a form of morality and understands it instead as one among many types of human practices.[141]

Naturalism and non-naturalism

An influential debate among moral realists is between naturalism and non-naturalism. Naturalism states that moral properties are natural properties and are in this respect similar to the natural properties accessible to empirical observation and investigated by the natural sciences, like color and shape.[142] Some moral naturalists hold that moral properties are a unique and basic type of natural property. Another view states that moral properties are real but not a fundamental part of reality and can be reduced to other natural properties, for example, concerning what causes pleasure and pain.[143]

Non-naturalism accepts that moral properties form part of reality and argues that moral features are not identical or reducible to natural properties. This view is usually motivated by the idea that moral properties are unique because they express normative features or what should be the case.[144] Proponents of this position often emphasize this uniqueness by claiming that it is a fallacy to define ethics in terms of natural entities or to infer prescriptive from descriptive statements.[145]

Cognitivism and non-cognitivism

The metaethical debate between cognitivism and non-cognitivism belongs to the field of semantics and concerns the meaning of moral statements. According to cognitivism, moral statements like "Abortion is morally wrong" and "Going to war is never morally justified" are truth-apt. This means that they all have a truth value: they are either true or false. Cognitivism only claims that moral statements have a truth value but is not interested in which truth value they have. It is often seen as the default position since moral statements resemble other statements, like "Abortion is a medical procedure" or "Going to war is a political decision", which have a truth value.[146]

The semantic position of cognitivism is closely related to the ontological position of moral realism and philosophers who accept one often accept the other as well. An exception is J. L. Mackie's error theory, which combines cognitivism with moral nihilism by claiming that all moral statements are false because there are no moral facts.[147]

Non-cognitivism is the view that moral statements lack a truth value. According to this view, the statement "Murder is wrong" is neither true nor false. Some non-cognitivists claim that moral statements have no meaning at all. A different interpretation is that they express other types of meaning contents. Emotivism holds that they articulate emotional attitudes. According to this view, the statement "Murder is wrong" expresses that the

speaker has negative moral attitudes towards murder or dislikes it. Prescriptivism, by contrast, understands moral statements as commands. According to this view, stating that "Murder is wrong" expresses a command like "Do not commit murder".[148]

Moral knowledge

The epistemology of ethics studies whether or how one can know moral truths. Foundationalist views state that some moral beliefs are basic and do not require further justification. Ethical intuitionism is one foundationalist view that states that humans have a special cognitive faculty through which they can know right from wrong. Intuitionists often argue that general moral truths, like "lying is wrong", are self-evident and that it is possible to know them *a priori* without relying on empirical experience. A different foundationalist view relies not on general intuitions but on particular observations. It holds that if people are confronted with a concrete moral situation, they can perceive whether right or wrong conduct was involved.[149]

In contrast to foundationalists, coherentists hold that there are no basic moral beliefs. They argue that beliefs form a complex network and mutually support and justify one another. According to this view, a moral belief can only amount to knowledge if it coheres with the rest of the beliefs in the network.[149] Moral skeptics reject the idea that moral knowledge is possible by arguing that people are unable to distinguish between right and wrong behavior. Moral skepticism is often criticized based on the claim that it leads to immoral behavior.[150]

Thought experiments are a common methodological device in ethics to decide between competing theories. They usually present an imagined situation involving an ethical dilemma and explore how moral intuitions about what behavior is right depend on particular factors in the imagined situation.[151] For example, in the trolley problem, a person can flip a switch to redirect a trolley from one track to another, thereby sacrificing the life of one person in order to save five. This scenario explores how the difference between doing and allowing harm affects moral obligations.[152] Another thought experiment examines the moral implications of abortion by imagining a situation in which a person gets connected without their consent to an ill violinist. It explores whether it would be morally permissible to sever the connection within the next nine months even if this would lead to the violinist's death.[153]

Moral motivation

On the level of psychology, metaethics is interested in how moral beliefs and experiences affect behavior. According to motivational internalists, there is a direct link between moral judgments and action. This means that every judgment about what is right motivates the person to act accordingly. For example, Socrates defends a strong form of motivational internalism by holding that a person can only perform an evil deed if they are unaware that it is evil. Weaker forms of motivational internalism allow that people can act against moral judgments, for example, because of weakness of the will. Motivational externalists accept that people can judge a behavior to be morally required without feeling a reason to engage in it. This means that moral judgments do not always provide motivational force. The debate between internalism and externalism is relevant for explaining the behavior of psychopaths or sociopaths, who fail either to judge that a behavior is wrong or to translate their judgment into action.[154] A closely related question is whether moral judgments can provide motivation on their own or need to be accompanied by other mental states, such as a desire to act morally.[155]

Related fields

Value theory

Value theory, also referred to as axiology,[d] is the philosophical study of value. It aims to understand what value is and what types of value there are. Further questions include what kinds of things have value and how valuable they are.[157] A central distinction is between intrinsic and instrumental value. An entity has intrinsic value if it is good in itself or good for its own sake. An entity has instrumental value if it is valuable as a means to something else, for example, by causing something that has intrinsic value.[158] Another key topic is about what entities have intrinsic value, for example, whether pleasure has intrinsic value and whether there are other sources of intrinsic value besides pleasure.[159]

There are disagreements about the exact relation between value theory and ethics. Some philosophers characterize value theory as a subdiscipline of ethics while others see value theory as the broader term that encompasses other fields besides ethics, such as aesthetics and political philosophy.[160] A different characterization sees the two disciplines as overlapping but distinct fields.[161] The term axiological ethics is sometimes used for the discipline studying this overlap, i.e., for the part of ethics that studies values.[162] The two disciplines are sometimes distinguished based on their focus: ethics is about moral behavior or what is right

while value theory is about value or what is good.[163] Some ethical theories, like consequentialism, stand very close to value theory by defining what is right in terms of what is good. But this is not true for ethics in general and deontological theories tend to reject the idea that what is good can be used to define what is right.[164]

Moral psychology

Moral psychology explores the psychological foundations and processes involved in moral behavior. It is an empirical science that studies how humans think and act in moral contexts. It is interested in how moral reasoning and judgments take place, how moral character forms, what sensitivity people have to moral evaluations, and how people attribute and react to moral responsibility.[165]

One of its key topics is moral development or the question of how morality develops on a psychological level from infancy to adulthood.[166] According to Lawrence Kohlberg, for example, children go through different stages of moral development as they understand moral principles first as fixed rules governing reward and punishment, then as conventional social norms, and later as abstract principles of what is objectively right across societies.[167] A closely related question is whether and how people can be taught to act morally.[168]

Evolutionary ethics is a subfield of moral psychology and sociobiology. It explores how evolutionary processes have shaped ethics. One of its key ideas is that natural selection is responsible for moral behavior and moral sensitivity. It interprets morality as an adaptation to evolutionary pressure that augments fitness by offering a selective advantage.[169] Altruism, for example, can provide benefits to group survival by improving cooperation.[170]

Descriptive ethics

Descriptive ethics, also called comparative ethics,[171] studies actually existing moral codes, practices, and beliefs. It investigates and compares moral phenomena in different societies and different groups within a society. It aims to provide a value-neutral and empirical description without judging or justifying which practices are objectively right. For instance, the question of how nurses think about the ethical implications of abortion belongs to descriptive ethics. Another example is descriptive business ethics, which describes ethical standards in the context of business, including common practices, official policies, and employee opinions. Descriptive ethics also has a historical dimension by exploring how moral practices and beliefs have changed over time.[172] Descriptive ethics is a multidisciplinary field that is covered by disciplines such as anthropology, sociology, psychology, and history. Its empirical outlook contrasts with the philosophical inquiry into normative questions, such as which ethical principles are correct and how to justify them.[173]

History

The history of ethics studies how moral philosophy has developed and evolved in the course of history.[174] It has its origin in the ancient civilizations. In ancient Egypt, the concept of Maat was used as an ethical principle to guide behavior and maintain order by emphasizing the importance of truth, balance, and harmony.[175] In ancient India, the Vedas and Upanishads were written as the foundational texts of Hindu philosophy and discussed the role of duty and the consequences of one's actions.[176] Buddhist ethics also originated in ancient India and advocated compassion, non-violence, and the pursuit of enlightenment.[177] Ancient China saw the emergence of Confucianism, which focuses on moral conduct and self-cultivation by acting in accordance with virtues, and Daoism, which teaches that human behavior should be in harmony with the natural order of the universe.[178]

In ancient Greece, Socrates emphasized the importance of inquiry into what a good life is by critically questioning established ideas and exploring concepts like virtue, justice, courage, and wisdom.[179] According to Plato, to lead a good life means that the different parts of the soul are in harmony with each other.[180] For Aristotle, a good life is associated with being happy by cultivating virtues and flourishing.[181] The close relation between right action and happiness was also explored by Hellenistic schools of Epicureanism, which recommended a simple lifestyle without indulging in sensory pleasures, and Stoicism, which advocated living in tune with reason and virtue while practicing self-mastery and becoming immune to disturbing emotions.[182]

Ethical thought in the medieval period was strongly influenced by religious teachings. Christian philosophers interpreted moral principles as divine commands originating from God.[183] Thomas Aquinas developed natural law ethics by claiming that ethical behavior consists in following the laws and order of nature, which he believed were created by God.[184] In the Islamic world, philosophers like Al-Farabi and Avicenna synthesized ancient Greek philosophy with the ethical teachings of Islam while emphasizing

the harmony between reason and faith.[185] In medieval India, philosophers like Adi Shankara and Ramanuja saw the practice of spirituality to attain liberation as the highest goal of human behavior.[186]
Moral philosophy in the modern period was characterized by a shift toward a secular approach to ethics. Thomas Hobbes identified self-interest as the primary drive of humans. He concluded that it would lead to "a war of every man against every man" unless a social contract is established to avoid this outcome.[187] David Hume thought that only moral sentiments, like empathy, can motivate ethical actions while he saw reason not as a motivating factor but only as what anticipates the consequences of possible actions.[188] Immanuel Kant, by contrast, saw reason as the source of morality. He formulated a deontological theory, according to which the ethical value of actions depends on their conformity with moral laws independent of their outcome. These laws take the form of categorical imperatives, which are universal requirements that apply to every situation.[189] Another influential development in this period was the formulation of utilitarianism by Jeremy Bentham and John Stuart Mill. According to the utilitarian doctrine, actions should promote happiness while reducing suffering and the right action is the one that produces the greatest good for the greatest number of people.[190]
An important development in 20th-century ethics in analytic philosophy was the emergence of metaethics.[191] Significant early contributions to this field were made by G. E. Moore, who argued that moral values are essentially different from other properties found in the natural world.[192] R. M. Hare followed this idea in formulating his prescriptivism, which states that moral statements are commands that, unlike regular judgments, are neither true nor false.[193] An influential argument for moral realism was made by Derek Parfit, who argued that morality concerns objective features of reality that give people reasons to act in one way or another.[194] Bernard Williams agreed with the close relation between reasons and ethics but defended a subjective view instead that sees reasons as internal mental states that may or may not reflect external reality.[195] Another development in this period was the revival of ancient virtue ethics by philosophers like Philippa Foot.[196] In the field of political philosophy, John Rawls relied on Kantian ethics to analyze social justice as a form of fairness.[197] In continental philosophy, phenomenologists such as Max Scheler and Nicolai Hartmann built ethical systems based on the claim that values have objective reality that can be investigated using the phenomenological method.[198] Existentialists like Jean-Paul Sartre, by contrast, held that values are created by humans and explored the consequences of this view in relation to individual freedom, responsibility, and authenticity.[199] This period also saw the emergence of feminist ethics, which questions traditional ethical assumptions associated with a male perspective and puts alternative concepts, like care, at the center.[200]

Yorum

Etik Bölümleri: NORMATİF: Belirli durumlarda uzmanların tanımladığı etik ilkeleri kapsamaktadır. Tıbbi Araştırmalarda Helsinki Bildirgesi öne çıkar. Kurallara bağlı etik boyuttur.

Ahlak toplumun kuralları ile oluşur, Etik ilkeler, kurallar değil, öneriler ise bu konuda uzmanlarca saptananlardır.
SONUCA GÖRE/Consequentialist: En iyi sonuç almak üzere yapılan etik yaklaşımlar.
YARARLILIK: Bilimsel yararı olanı uygulamaktır. Kanıta dayalı tıp kavramında öncelikle A grubu, daha sonra diğerlerine başvurulabilir.
DEONTOLOJİ: Görev olarak insanı mutlu ve tatmin edici yapılanlar, ödev görevi tanımlamaktadır.
ERDEMLİLİK/Virtue: Doğuda olmak ve söyleneni yapmak, sır saklamak, cesaret ve affetmek de bunun bir niteliğidir.
META ETİK. Başlıca 3 grupta ele alınır: 1) Ahlak, etik terimlerinin anlamı ve uygulanmasındaki yeri (yapılan işin değeri), 2) Ahlak ve etik boyutun doğal uygulanması, yapısını belirler (yapılanlar sanal veya gerçeklik üzere mi) ve 3) Birçok savunmada göze alınan parametreleri (yapılanlar uygun mu, doğru boyutta mı) irdeler.
UYGULAMALI ETİK: Uyulama ile ortaya çıkanlara göre yön ve karar değişikliğini yapmaktır. Zarar vermemek, faydalı olmak gibi ilkeleri kapsar.

NEONATOLOJİ AÇISINDAN: Öncelikle etik ilkelere bakılır, sonra da ne yapmalıyım, bunlara göre nasıl planlamalıyım algısı olmalıdır. Kısaca etik ilkelerin tümünü kapsar. Uygulamada bebekten alınan yanıta göre yaklaşımı devamlı düzenlemelidir. Oksijen vermek sorunu çözmez, devamlı izlem ile en az oksijen ile oksijenlenmeyi sağlamaya çalışılmalıdır.

Etik ilkelerin anlamı: Etik kelime anlamı olarak karakter demek, Türkçe 'de kılık ve kıyafetine dikkat et denilmesi ile buradaki kılık etik boyuttur. Kılıçta etik olunması için yaptırım demektir, savaş aracı değil, adalet heykelinde olduğu gibi hak edişi, adaleti sağlayan araçtır.

Konu merkezli, Hasta merkezli olması: Konu merkezlide ödevler, görevlerin tanımlandığı anlaşılacaktır. Buna karşın suç olmadıkça bireyin kendi tercih hakkı olduğu da bir gerçekliktir.

NEONATOLOJİ AÇISINDAN: Bebek oksijenlenecektir ama bunun yöntemi, oksijen vermenin çok ötesindedir.

Kant: kategorik zorunluklar: Uygulamada çeşitli yöntemleri olduğu, bunun da kişiye ve duruma göre değişmesinin önemi açıktır.

NEONATOLOJİ AÇISINDAN: Oksijenlenme, hücre düzeyinde işlevin oluşmasıdır, bun göre yaklaşım her olguya göre yapılanmalıdır.

Tanrı Buyruğu: Dinlerde kültürel algı hem tanımlar hem kural koyar ve hem de cezalandırmadır. Dolayısıyla üçlü kuvveti bütünleştirir: Yasama, Yürütme ve Yargı. 622 Medine Antlaşması/Anayasası ve Kuran ise uyarı, öğüt olarak tanımlanır, kelime anlamı da taktim ve sunumdur. Buna karşın oluşan tarikatlar ve yaklaşımlar ile Katolik usulleri ile kalıp ve bir kurtarıcı ihtiyacı oluşturulur. Sen bilemezsin, rahip veya hocaya sor denilir ve onun dediğini yap, günah ona yazılsın denilir. Bunun geçerli tarafı yok ise de uygulamada önerilir. *6/159: Din anlayışlarını parça, parça edip, cemaat ve cemaat olanlar var ya, senin/bireyin onlarla hiçbir işin olamaz*.

NEONATOLOJİ AÇISINDAN: Serviste vizite sırasında hocanın dediğini yap, bu kural Yoğun Bakımlarda geçersizdir, bebeğin verisine bak diye değiştirilir.

Değerler Etiği: Değerler ile inanış, dini algıları karıştırmamalıdır.

Etik Boyutlar: Birçok yaklaşım yöntemleri olmasına karşın, hastanın verileri üzerine, bilimsel olarak bebeğin fizyolojik dengenin kurulmasıdır. Fizyopatolojik boyuttan da kaçınmak temel hekimlik görevi olmaktadır.

ÖZET: Kültürlere göre yaklaşım ve yorum fark etmektedir. Zarar ne denildiği zaman, kurallara uymamak bir zarar gösterilebilir. Başkasının rıza göstermediği bir boyut, hatta kendi gönül ve aklınıza uymayanı yapmanız bile bu kapsamda olabilir. Trafik sağdan ise, öndekini geçmek için sola geçmelisiniz, ama onu sıkıntıya sokmadan yapmalısınız.

Etik versus Hukuk

Toplumlar hukuksal karar için jüri sistematiği üzerinde ise, bunun anlamı ortak akıl, kamu vicdanı şeklindeki toplum görüşünü, yorumları öne çıkarmak olura, aynı şeriat denilen Katolik benzeri yapılanmada da Groningen Protokolü şeklinde bir yaklaşım izlenebilmektedir.
Birey Hakları ve suç somut kanunda yazılan şekilde kanıta dayalı olmalı, yorum ve irdelemeye kapalıdır denilen hukuk yapısında da doğrudan yasal yapı önemlidir.

Bu nedenle toplumsal görüşü sunan Etik Boyut ile, Haklar üzere olan Hukuk yaklaşımı konusu irdelenmesi ve aradaki görüş farkının sunulması için bu Bölüm hazırlanmıştır.
Bir Prematürenin yaşamının herhangi bir gerekçe ile sonlandırılması kabul edilebilir olmamalıdır.

Etik ve Hukuk konusunda verilen bir konferans sunumu temelinde yaklaşım yapılacaktır. Unutmamak gerekir ki, Groningen Protokolünde de belirttiği gibi Savcılığın dava açmaması beklenmektedir ifadesi yer almaktadır. ülkemizde bu talep ile İzmir'de doğrudan Hekimi ve Yoğun Bakım Ünitesini şikâyete giden aile, eziyet yapıyorlar diyerek ve Groningen Protokolünün işletilmesini istemişler, Savcı, imza ile taleplerini aldıktan sonra aileyi tutuklamış ve bebeği de Devletin bakımı altına almıştır. Bu açıdan suçu talep etmek bile suçtur. Bu açıdan bu konu aşağıda daha geniş işlenmektedir.

KAYNAK[28, 29]:
28)-M. Arif AKŞİT: YENİDOĞAN HAKLARI: UNEKO 2013
29)- M. Arif AKŞİT: YENİDOĞAN HAKLARI ve ONAM, 1. Çocuk Dostu 2013

Etik diyerek tanımlanan yaklaşımlar yerine olay, Primum non nocere yapısı ile suç ve zarar ile zulüm olmaması açısından karşılıklı bir irdeleme yerinde olacaktır.

Birey Hakkı en öncelikli ve üstündür, yaşam hakkı temel varlığın oluşması ise, bunun korunup, gözetilmesi bir hukuksal haktır.

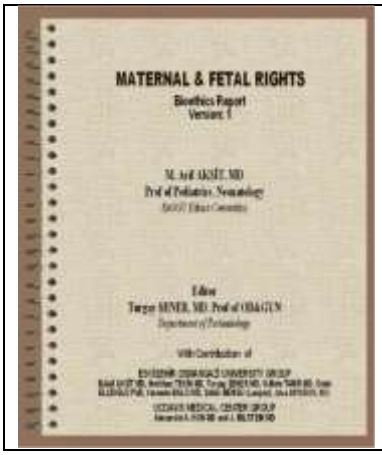
Neonatolog ve Çocuk Genetik uzmanlığı ötesinde 12 yıl Hastane Etik Kurul Başkanlığı ve 24 Yıl Etik ve Perinatoloji Konsey toplantıları üyeliği ve başkanlığı yapmanın bir sonucu olarak aşağıdaki çabalarım sunulmaktadır.

Bu konuda yazılı görüşlerimi kapsayan çalışmalar, Davis Çocuk Hastanesi, Sacramento, Kaliforniya'da Neonatoloji Başkanı J.M. Milstein katkı ve destekleri ile "The differences between East and the West (In Ethical aspects), UC Davis" olduğunu ifade etmeliyim.

Genel Neonatolojiyi ilgilendiren Bildirge ve Yasalar

Hukuki açıdan önemli olan yaklaşımlar aşağıda sunulacaktır. Neonatoloji ve birey hakları temelinde olanlar esas alınmaktadır.

İstanbul Bildirgesinin dayandığı görüşler



***19 Nisan 2013, 1. Çocuk Dostları ve Yenidoğan Kongresi Genel Kurulu**
***19-22 Eylül 2013 XIV. Perinatoloji Kongresi**
***23 Nisan 2014 XV. Perinatoloji Kongresi**

Anneler;
- ANA ve ANNELİK insan türünün sürdürülmesi için mutlak gereken bir olgudur. İnsan tek tür olarak aynıdır, birey olarak haklarda eşittir. Ancak ana ve annelik olumlu açıdan ayrımcılık yapılarak ek haklar sağlanmasını zorunlu kılmaktadır. Türk Dünyası Uygulama ve Araştırma Merkezi Yenidoğan Dergisi
- ANA ve ANNELİK, tüm insanlık değerlerinin bir simgesidir
- ANA ve ANNELİK, fedakârlığın bir temsilcisidir
- ANA ve ANNELİK, sevginin kaynağıdır
- ANA ve ANNELİK, tüm insanlık değerlerinin oluşmasını sağlayandır
- ANA ve ANNELİK, eğitimin başlangıcı ve sürdürebilirliğini temin edendir. İnsan ilk eğitimini annesinden almaktadır.
- ANA ve ANNELİK, iş birliği, eşgüdüm ve hoşgörünün örneğidir
- ANA ve ANNELİK, toplumsal gelişim, değişim, uyum ve uyarlamanın unsurlarıdır
- ANA ve ANNELİK, bebeğin büyüme ve gelişmesini özveri boyutunda kendi yaşamından üstün tutar
- ANA ve ANNELİK, kendi yavrusuna göre özel anne sütü üreten bir kaynaktır. Bu kaynak sadece gıda olarak değil, sosyal, psikolojik ve ruhsal desteği ve insanlığı veren bir insanlık besindir.
- ANA ve ANNELİK, yaşamsal insanlık yapılanması ve gelişmesinde, doğruluk ve hakikatin oluşmasında temel unsurdur.
- ANA ve ANNELİK, hakkında yanlış ve tartışmalı, tereddüt içeren hiçbir şeyin/durumun simgesi ve diğer olumsuz yaklaşımların yapılamayacağı tek örnektir
- ANA ve ANNELİK, bir kavram olarak; temel ilke ve insanlığı temsil etmektedir.

Şekil 2: İstanbul Bildirgesi, Maternal ve Fetal Haklar konulu yazılan Kitap dayanağı ile oluşturulmuştur. "The differences between Eat and the West (In Ethical aspects), UC Davis" ilk başlangıç kitapçığı olmuştur

Yeni Ortam (uluslararası)

Kültürlere göre yaklaşımlar değişmektedir. Başlıcaları:
Göçebe Kültüründe: o kabilenin varlığı için önemli olanlar emsal alınmalıdır. Engelli olanların o toplumda göçerken yeri olmayacağı için, geride bırakılmaktadır.
Tarım Kültüründe: o şehrin, kasabanın selameti için yaşlılar kurulu daha önceki geleneksel esaslar içinde karar vermektedirler. İsrail varlığı için, içinde yabancı, Filistinli, temelde tarihsel halkı olmasına karşın olmamalı ya sürgün ya da ölmelidir demektedirler.
Endüstri Kültüründe: o şirket veya fabrikanın dışındakiler onların rekabet ettikleri için, sağ olsun bizler diyerek bir nevi takım tutanlar gibi olmaktadırlar.
Yüksek Teknoloji Kültüründe: globalleşen Evrende, belirli bir kesim, diğerini baskı altında tutmalı, onay vermediğini yaptırmamalıdır. Bu nedenle kendisine yarayan, kısaca işine geleni destekler. Engelliler bu kapsamda olmadığı açıktır.
Birey Hakkı, Civil Liberties Kültüründe: o kişinin varlık olarak olması önemlidir, buna karışılamaz, suç unsuru olmadıkça da müdahale edilemez.
Karma Kültürel yapıda: o kültürde, çok farklı etkileşim olmaktadır, ancak genel yapı, jüri karar vermeli, ortak akıl ve kamu vicdanı denilerek yaklaşım öngörülmektedir.

İkinci Dünya savaşından sonra insanlık kriterleri öne çıkmaya başlamış, daha önce bazı Ülkeler, Türkiye gibi, 622 Medine Antlaşması/Anayasası gibi, eşitlik ve ortak hak öne sürerken, bir hâkim güç adı altına zorbalık öne çıkmış ve bunun yıkılabilmesi için Nurnberg kotları ile bir değişim yaşanmıştır. Bundan sonra Birey Kişisel Hak tanımlanırken, aynı zamanda Toplum Görüşü olarak Kültürel yapıda kurallar oluşturulmaktadır.
Unutulmamalıdır ki, suç kabul edilen eylemden dolayı, birey sorumludur ve cezalandırılması olasıdır. Ülkemizde ise susmak bile TCK 280 Maddede Sağlık Personeline özel vurgu ile suçtur, cezalandırılır.
ÖZET: Zamanımızda İnsan Hakları Mahkemesi de dahil, gerekçe birey hakkı ve birey hakkının herhangi bir şekilde zedelenmesi de suç kapsamındadır. Temel hak olarak Yaşam Hakkıdır.

Nürnberg ilkeleri, Wikipedia[30]

Nürnberg ilkeleri bir savaş suçunun ne şekilde teşkil ettiğini belirlemek için konulan bir dizi kuraldır. İlkeler II. Dünya Savaşı sonrasında Nazi Partisi üyelerinin Nürnberg Uluslararası Askerî Ceza Mahkemesi'nde yargılanmaları sırasında temel hukuk prensiplerini belirlemek amacıyla Birleşmiş Milletler Uluslararası Hukuk Komisyonu tarafından oluşturuldu.
İlkeler
I. İlke: Uluslararası hukuka göre suç kabul edilen bir eylemde bulunan şahıs, bundan sorumludur ve cezalandırılması olasıdır.
II. İlke: Uluslararası hukuka göre suç kabul edilen bir eyleme karşı bir ceza öngörülmese de bu şahsı uluslararası hukuk önünde işlediği suçun sorumluluğundan kurtarmaz.
III. İlke: Uluslararası hukuka göre suç kabul edilen bir eylemde bulunan şahıs, devlet başkanı ya da sorumlu hükümet memuru olmaları, işbu şahısları uluslararası hukuk önünde sorumluluktan kurtarmaz.

IV. İlke: Bir şahsın üstü ya da hükûmetinin emrine uygun davranması, ahlaki irade bir şahıs için her zaman bir olanak olduğundan, uluslararası hukuk önünde sorumluluğunu ortadan kaldırmaz.
V. İlke: Uluslararası hukuka göre suç işlediği iddia edilen şahıs, gerçeklere ve hukuka uygun olarak adil yargılanma hakkına sahiptir.
VI. İlke: Aşağıda sıralanan suçlar uluslararası hukuk önünde cezaî suçlar olarak belirlenmiştir:
(a) Barışa karşı işlenen suçlar
(i) Saldırgan ya da uluslararası antlaşma, sözleşme ve garantileri ihlal eden bir savaşı planlama, hazırlık ya da kışkırtma,
(ii) Ortak plana iş birliği yapma ya da (i) maddede belirtilen eylemlerin başarılması karşı komplo;
(b) Savaş suçları
Yasaların ya da savaş adetlerinin ihlalleri, örneğin: köle işçilere ya da herhangi bir amaçla sivil halka ya da işgal altındaki bölge halkına, savaş tutsaklarına, denizdeki insanlara, kötü davranma ya da onları, rehineleri öldürme, sınır dışı etme; kamu ya da özel mülklerin yağmalanması, kent, kasaba ve köylerin ahlaksızca yıkımı ya da askerî gereklilikle açıklamayacak biçimde tahrip edilmesi;
(c) İnsanlığa karşı işlenen suçlar
Cinayet, kitle imha, köleleştirme, sürgün ve sivil halka yapılan diğer insanlık suçları ya da siyasî, etnik ya da dinî nedenlerle eziyet ya da savaş suçu ya da insanlığa karşı işlenen suçlarla ilgili idam ya da eziyet ya da eylemler sürdürülmesi.
VII. İlke: Savaş suçu ya da insanlığa ya da barışa karşı işlenen suçların eyleme geçirilmesinde suç ortaklığı, VI. İlkede belirtildiği üzere uluslararası hukuka göre bir suçtur.

ÖZET VURGULAR:

- Suç kabul edilen bir eylemde bulunan şahıs, bundan sorumludur
- Bazı ülkelerde ceza öngörülmese de bu şahsı hukuk önünde işlediği suçun sorumluluğundan kurtarmaz
- Devlet Başkanı, emir alan memur olması, işbu şahısları uluslararası hukuk önünde sorumluluktan kurtarmaz
- Emirlere uygun davranması, etik irade/rıza ve sorumluluk kendisinde olması nedeniyle, hukuk önünde sorumluluğunu ortadan kaldırmaz
- Ulusal ve uluslararası boyutta oluşan adil yargılanma hakkına sahiptir
- Başlıcaları: a) Barışa karşı işlenen suçlar: saldırganlık ve komplo yaklaşımları, b) Savaş suçları: insanlık suçları, c) İnsanlığa karşı işlenen suçlar; darbe be insanlık suçları.
- Eylemlerde suç ortağı olmak

• 1948-50 İnsan Hakları Sözleşme

İnsan, kişilik hakları ile yaşamın sonlandırılması konusundaki hukuksal yapılar

İnsan Hakları 1948 Bildirgesi sağlık konusunda vurguları vardır.
BİRLEŞMİŞ MİLLETLER, İNSAN HAKLARI EVRENSEL BİLDİRGESİ: 10 Aralık 1948
Çocuk özel olarak korunur denilmesi, tüm boyutları kapsamaktadır: *Yaklaşım olarak gebelik ve Neonatal dönemin dışlanması olanaksızdır*. **İlke2:** Çocuk, özel olarak korunur, yasalar ve başka yollarla sağlıklı ve normal biçimde, özgürlük ve saygınlık koşullarında bedensel, zihinsel, ahlak, manevi ve toplumsal olarak gelişmesine olanak sağlayacak fırsat ve kolaylıklardan yararlanır. Bu amaçla çıkarılacak yasalarda, çocuğun çıkarları önde gelir.

Özel güvenlik sağlanmalı ve sağlıklı yaşam hakkı temin edilmelidir: *Yaklaşım olarak her boyut, intrauterin de kapsaması doğaldır*. **İlke4:** Çocuk toplumsal güvenlik olanaklarında yararlanır. Sağlık içinde ve yetişme hakkı vardır. Bu amaçla kendisine ve annesine özel bakım

ve korunma olanakları sağlanır. Bu olanaklar doğum öncesi ve doğum sonrası bakımı da içerir. Çocuğun, yeterli beslenme, barınma, eğlenme ve sağlık hizmetlerine hakkı vardır.

Burada her bireyin erişebilir en yüksek standardı sağlanması bir Devlet işlevi olmakta, bu da organizasyon ve sevkleri olanak sağlamaktadır: *Yaklaşım olarak en yüksek standartların olması öngörülmelidir denilmektedir*. **Madde 12: 1-Bu Sözleşmeye Taraf Devletler, herkesin erişilebilir en yüksek bedensel ve ruhsal sağlık standardından yararlanma hakkını tanır.**

Ölüm doğum oranı ve çocuk ölümlerinin azaltılması ve çocuğun sağlıklı gelişmesi için önlemler alınması Burada: *Yaklaşım olarak*. **Madde 12/2-**Bu Sözleşmeye Taraf Devletlerce bu hakkı tam olarak gerçekleştirmek üzere yapılacak girişimler: Ölüm doğum oranı ve çocuk ölümlerinin azaltılması ve çocuğun sağlıklı gelişmesi için önlemler alınması; Çevre ve endüstri sağlığının her bakımından iyileştirilmesi; Salgın ve yöresel hastalıklarla, meslek hastalıkları ve öteki hastalıkların önlenmesi, bakımı ve denetlenmesi; **Hastalık durumunda herkese tıbbi hizmet ve bakım sağlayacak koşulların yaratılması için gerekli olan önlemleri içerir.**

Çocuğun ulaşabileceği yaklaşımı, ulaşmalıdır boyutu olarak algılanmalıdır: *Yaklaşım olarak sevk zinciri bu açıdan uçak, helikopter olması ile anlam kazanmaktadır*. **Madde 24: 1-Taraf Devletler, çocuğun olabilecek en iyi sağlık düzeyine kavuşma, tıbbi bakım ve rehabilitasyon hizmetlerini veren kuruluşlardan yararlanma hakkını tanırlar. Taraf Devletler, hiçbir çocuğun bu tür tıbbi bakım hizmetlerinden yararlanması hakkında yoksun bırakılmamasını güvence altına almak için çaba gösterirler.**

Burada amaç bebek ve çocuk ölümlerinin düşürülmesidir, yoksa öldürme boyut anlamı taşıyamaz: *Yaklaşım olarak özellikle ilk yaşam aşaması olan bebeklerin ölüm oranı düşürülmelidir*. **2-Taraf Devletler, bu hakkın tam olarak uygulanmasını takip ederler ve özellikle:** Bebek ve çocuk ölüm oranlarının düşürülmesi; **Bütün çocuklara gerekli tıbbi yardımın ve tıbbi bakımın; temel sağlık hizmetlerinin geliştirilmesini önem verilerek sağlanması;** Temel sağlık hizmetleri çerçevesinde ve başka olanakların yanı sıra, kolayca bulunabilen tekniklerin kullanılması ve besleyici yiyecekler ve temiz içme suyu sağlanması yoluyla ve çevre kirlenmesinin tehlike ve zararlarını göz önüne alarak, hastalık ve yetersiz beslenmeye karşı mücadele edilmesi;
Anneye doğum öncesi ve sonrası uygun bakımın sağlanması; Bütün toplum kesimlerinin özellikle ana-babalar ve çocukların, çocuk sağlığı ve beslenmesi, anne sütü ile beslenmenin yararları, toplum ve çevre sağlığı ve kazaların önlemesi konusunda temel bilgileri elde etmeleri ve bu bilgileri kullanmalarına yardımcı olunması; Koruyucu sağlık bakımlarının, ana-babaya rehberliğini, aile planlaması eğitimi ve hizmetlerinin geliştirilmesi; amaçlarıyla uygun önlemleri alırlar.

NEONATOLOJİ AÇISINDAN: B.M., İNSAN HAKLARI EVRENSEL BİLDİRGESİ: 10 Aralık 1948, uyarınca, özellikle çocuklarda sağlıklı yaşam hakkı vurgusu açık ve nettir. Bunlar çeşitli yaşarsa sorunlu çocuk olacak bu nedenle ötenazi yapalım şeklinde bir algıya bile rastlanılmadığı görülmektedir.

- ## 1964-2008 Helsinki

Sağlıklı olmak, yaşamın sağlıklı olması, sağlığın devamlılığı, kontrol ve tedavi gibi çoklu parametreleri kapsamaktadır: *Yaklaşım olarak Tıp Biliminin gereksinimlerini hasta*

açısından oluşturarak yapmalıdır. ***Hastamın sağlığı benim ilk önceliğimdir" cümlesiyle hekimi bağlar***

Yaklaşımlarda yarar önemlidir, bu hesapta olunmalıdır: *Yaklaşım olarak yapılanların amaç ve güdüsü sorgulanır ve dayanak, gerekçe bireyin iyiliği olmalıdır*. ***Uluslararası Tıp Etiği Kodu "Tıbbi hizmetleri verirken, hekimin yalnızca hastanın yararına göre davranması gerektiğini bildirir***

NEONATOLOJİ AÇISINDAN: Yaşam hakkının sağlanması, canlandırma boyutu doğrudan herhangi bir sorgu ve dayanak olmadan, bilimsel açıdan yapılmalıdır. Gelecek bilinmez ama amaç ve güdü belirgin bellidir.

- ## 1972 Amerika Hastaneler Birliği

Bilgilendirme ve rıza alma boyutu ortaya getirilmekte, bunun temel olduğu vurgulanmaktadır: *Yaklaşım olarak her bireyin aydınlanma hakkı vardır, buna göre de rıza alınmalıdır*. 1972 Amerika Hastaneler Birliği Hasta Hakları Bildirgesi: Hastanın hastalığı, sağaltım yöntemleri hakkında bilgilendirilmesi ve seçim yapma hakkının sağlaması vurgulanmıştır.

NEONATOLOJİ AÇISINDAN: Yaşam hakkı söz konusu olunca rızaya gerek olmaz. Bu nedenle bebeğin yaşatılması konusunda sadece bilgi verilir, rıza alınmaz.

- ## 1981 Lizbon I, 1995 Lizbon II Bildirgesi

Hasta hakları, Wikipedia[31]

Hasta hakları, hastaların sağlık kurumları ve sağlık çalışanlarıyla ilişkilerinde bir insan ve hasta olarak sahip olduğu haklar bütünüdür.

Kapsamı

- Sağlık hizmetlerinden faydalanma
- Eşit hizmet alma (Dil, din, ırk, etnik köken, cinsiyet vb ayrımcılığa uğramadan hizmet alma)
- Güvenlik
- Hizmet alacağı kurumu seçme
- Hizmet göreceği personeli seçme, değiştirme
- Tedaviye rıza
- Tedaviyi reddetme
- Mahremiyet
- Bilgi edinme
- Ziyaretçi
- Refakatçi
- Rahatlık
- Dini ibadet
- Başvuru, şikâyet ve dava açma

Tarihi gelişimi

Dünyada hasta hakları

- 1972 Amerika Hastaneler Birliği Hasta Hakları Bildirgesi: Hastanın hastalığı, sağaltım yöntemleri hakkında bilgilendirilmesi ve seçim yapma hakkının sağlaması vurgulanmıştır.
- 1981 Dünya Tıp Birliği Lizbon Hasta Hakları Bildirgesi: Dünya Tıp Birliği'nin 34. Genel Kurulu'nda dünyadaki ilk uluslararası hasta hakları belgesidir.[1] Hekim seçme, önerilen sağaltımı kabul veya Red, onulmaz hastalık durumunda onurlu biçimde ölme gibi hakları belirtmiştir.
- 1993 Hasta haklarına ilişkin ilk yasa: Finlandiya Hasta Hakları Kanunu.[1]
- 1994 Dünya Tıp Birliği Amsterdam Hasta Hakları Bildirgesi
- 1995 Dünya Tıp Birliği Bali Hasta Hakları Bildirgesi (Lizbon II Bildirgesi olarak da adlandırılır.

Türkiye'de gelişimi

- 1928 Tababet ve Şuabatı Sanatlarının Tarz-ı İcrasına Dair Kanun
- 1960 Tıbbi Deontoloji Nizamnamesi
- 1987 Sağlık Hizmetleri Temel Kanunu (3359 sayılı yasa)

- 1993 İlaç Araştırmaları Hakkında Yönetmelik
- 1998 Hasta Hakları Yönetmeliği
- 1998 Türk Tabipler Birliği "Hekimlik ve Meslek Etiği Kuralları". TTB'nin 47. Büyük Kongresi'nde kabul edilmiştir.[1]
- 2003 Sağlık Tesislerinde Hasta Hakları Uygulamalarına İlişkin Yönerge (yürürlükte değil)
- 2003 Sözleşmeli Sağlık Personelinin Uymakla Yükümlü Olduğu Mesleki ve Etik Kurallar
- 2005 Hasta Hakları Uygulama Yönergesi (yürürlükte değil)
- 2014 Hasta Hakları Yönetmeliğinde Değişiklik Yapılmasına Dair Yönetmelik (8 Mayıs 2014 tarih ve 28994 sayılı Resmî Gazete)
- 2014/32 Hasta Hakları Uygulamaları Genelgesi

Türkiye'de hasta hakları

Türkiye'de hasta hakları ile ilgili olarak 01 Ağustos 1998 tarih ve 23420 sayılı Resmî Gazete'de Hasta Hakları Yönetmeliği yayınlanmıştır.[2] Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü bu yönetmelikte geçen başvuru, şikayet hakkının kullanımını kolaylaştırmak için bir web sitesi hazırlamıştır. Hasta Başvuru Takip Sistemi (HBTS)'ne bağlı olan sitedir.[3] Bu siteden kişisel başvuruların takibi yapılabilir.
Ötanazi bazı ülkelerde bir insan ve hasta hakkı olarak kabul edilirken Türkiye'de yasaktır (HHY m.2-13).

NEONATOLOJİ AÇISINDAN: Başlıca vurgulanan Haklar: Sağlık hizmetlerinden faydalanma, eşit hizmet alma (Dil, din, ırk, etnik köken, cinsiyet vb ayrımcılığa uğramadan hizmet alma), güvenlik, hizmet alacağı kurumu seçme, hizmet göreceği personeli seçme, değiştirme, tedaviye rıza, tedaviyi reddetme, mahremiyet, bilgi edinme, ziyaretçi, refakatçi, rahatlık, dini ibadet, başvuru, şikâyet ve dava açma. Bebeğin yaşam hakkı söz konusunda rıza ve onay alınmaz, aile karşı çıkarsa da bebek Devlet bakımına alınır.

- ## 1989-90 Çocuk Hakları

Çocuk Hakları Sözleşmesi 2 Eylül 1990

Burada açık olarak temel yaşama hakkına sahip olmasını sağlamak olmaktadır: *Yaklaşım olarak sağlıklı yaşamaları, morbidite ve mortalitenin önlenmesi gelir, yoksa ölme hakkı diyerek yaşatılmaması anlaşılamaz*. **Madde 6: 6/1**. Taraf Devletler, her çocuğun temel yaşama hakkına sahip olduğunu kabul ederler.

Hayatta kalması ve gelişmesinde, belirli bir kısıtlama getirilmemektedir: *Yaklaşım olarak tüm tıbbi yaklaşım boyutu yapılmalıdır*. **6/2**. Taraf Devletler, çocuğun hayatta kalması ve gelişmesi için mümkün olan azami çabayı gösterirler.

Çocuğun yararı temel düşüncedir: *Yaklaşım olarak tüm faaliyetler vurgusu vardır*. **Madde 3:** 1. Kamusal ya da özel sosyal yardım kuruluşları, mahkemeler, idari makamlar veya yasama organları tarafından yapılan ve çocukları ilgilendiren bütün faaliyetlerde, çocuğun yararı temel düşüncedir.

Burada sadece çocuk değil, çocuğa bakan, ilgilenenleri de kapsayan bir çerçeve çizilmektedir: *Yaklaşım olarak tüm yasal ve idari işlemleri de bu yolda alınması gerektiği vurgusu vardır*. **3/2**. Taraf Devletler, çocuğun anne-babasının, vasilerinin ya da kendisinden hukuken sorumlu olan diğer kişilerin hak ve ödevlerini de göz önünde tutarak, esenliği için gerekli bakım ve bu amaçla tüm uygun yasal ve idari önlemleri alırlar.

Taraf Devletler uymayı taahhüt eder demekle hukuksal açıdan uygulama zorunluluğu doğmaktadır: *Yaklaşım olarak tıbbi ne gerekirse yapılmalıdır*. B 3. Taraf Devletler, çocukların bakımı ve korunmasından sorumlu kurumların, hizmet ve faaliyetlerin özellikle

güvenlik, sağlık, personel sayısı ve uygunluğu ve yönetimin yeterliliği açısından, yetkili makamlarca konulan ölçülere uymalarını taahhüt ederler.

Yararlanma hakkı tanınma kuralı vardır. Bunun için kabul ve ücret sorunu olmamalıdır: *Yaklaşım olarak en ideal yere sevki gerekir ve bunu yapan merkezin reddetme hakkı da yoktur*. **Madde 24/1**. Taraf Devletler, çocuğun olabilecek en iyi sağlık düzeyine kavuşma, tıbbi bakım ve rehabilitasyon hizmetlerini veren kuruluşlardan yararlanma hakkını tanırlar. Taraf Devletler, hiçbir çocuğun bu tür tıbbi bakım hizmetlerinden yararlanma hakkında yoksun bırakılmamasını güvence altına almak için çaba gösterirler.

Belirli çabadan sonuç alınması da gerekmektedir: *Yaklaşım olarak yaptık ama başaramadık değil, gerekçe ve dayanaklarda olmalıdır*. **24/2**. Taraf Devletler, bu hakkın tam olarak uygulanmasını takip ederler ve özellikle: a) Bebek ve çocuk ölüm oranlarının düşürülmesi; b) Bütün çocuklara gerekli tıbbi yardımının ve tıbbi bakımın; temel sağlık hizmetlerinin geliştirilmesine önem verilerek sağlanması; c) Temel sağlık hizmetleri çerçevesinde ve başka olanakların yanı sıra, kolayca bulunabilen tekniklerin kullanılması ve besleyici yiyecekler ve temiz içme suyu sağlanması yoluyla ve çevre kirlenmesinin tehlike ve zararlarını göz önüne alarak, hastalık ve yetersiz beslenmeye karşı mücadele edilmesi; d) Anneye doğum öncesi ve sonrası uygun bakımın sağlanması; e) Bütün toplum kesimlerinin özellikle anne- babalar ve çocukların, çocuk sağlığı ve beslenmesi, anne sütü ile beslenmesinin yararları, toplum ve çevre sağlığı ve kazaların önlenmesi konusunda temel bilgileri elde etmeleri ve bu bilgileri kullanmalarına yardımcı olunması; f) Koruyucu sağlık bakımlarının, anne- babaya rehberliğini aile planlaması eğitimi ve hizmetlerinin geliştirilmesi; amaçlarıyla uygun önlemleri alırlar.

Burada plasebo ve tıbbi bilimsel fayda olmayandan da kaçınılması bir zorunluluk vurgusu vardır: *Yaklaşım olarak tıbbi bilimsel olmayan uygulanamaz*. **24/3**. Taraf Devletler, çocukların sağlığı için zararlı geleneksel uygulamalarının kaldırılması amacıyla uygun ve etkili her türlü önlemi alırlar.

NEONATOLOJİ AÇISINDAN: Çocuk Hakları Sözleşmesi de sanki Neonatologlar tarafından hazırlanmış gibidir.

• 1993 Finlandiya

Hasta hakları konusu gündeme getirilmiştir: *Yaklaşım olarak tıbbi Bilimi içinde olmalıdır*.
B 1993 Hasta haklarına ilişkin ilk yasa: Finlandiya Hasta Hakları Kanunu.
NEONATOLOJİ AÇISINDAN: Yaklaşımların daha ziyade başvuru ve işlemler şeklinde bürokratik boyutları kapsadığı anlaşılmaktadır.

• 1994 Amsterdam

Burada sağlık sigortalama sistematiğinin getirilmesidir: *Yaklaşım olarak 1941 yılından bu yana oluşan yapıdır*. 1994 Dünya Tıp Birliği Amsterdam Hasta Hakları Bildirgesi
How is Health-care in Amsterdam? The Netherlands does not have a single-payer healthcare system. Instead, its universal healthcare system is achieved through compulsory basic private insurance that is regulated and subsidized by the government. The country began its national health insurance program in 1941.

NEONATOLOJİ AÇISINDAN: Hollanda evde doğum programının etkin olduğu, sağlık ekibinin eve giderek doğum yaptırdığı bilinmektedir. Bu açıdan daha ucuz olduğu, gebelik takibi ile de etkinlik arttırılmaktadır. Sorunda hastane sevki bilinmektedir.

- ## 1995 Bali

Hekimlerin triyaj yaklaşımında olduğu gibi, eşit sağlık hakkı olmadığı durumlarda hastaların seçimi konusu gündeme gelmektedir: *Yaklaşım olarak sevk zinciri dikkate alınmalıdır*. *Özellikle tedavi bakımından hizmet sınırlılığı olan durumlarda potansiyel hastalar arasında bir seçim yapılması gerekiyorsa, bu seçimin bütün hastaların hakkını dikkate alarak eşit bir şekilde yapılması gerekir. Bu seçim tıbbi ölçütlere göre ve ayırım yapılmaksızın yapılmalıdır*

NEONATOLOJİ AÇISINDAN: İmkânlara göre tıbbi yaklaşım yapılacağı açıktır. Ancak gebelikten itibaren, eğer Yoğun Bakım Ünitesi yok ise, gebelikte prematüre takibinde etkin ve verimli, yapabilen ortama, üniteye sevk etmesi zorunluluktur. Yapmaz ise suçlanabilecektir.

- ## 1997 Oviedo-Biyotıp sözleşmesi

İnsan Hakları ve Biyotıp Sözleşmesi

Burada açık ve net insanın menfaatleri, bireysel haklar, kişilik özellikler üstündür, başka bir gerekçe konulamaz: *Yaklaşım olarak her yaklaşımda insanın üstünlüğü, birey hakkının tüm haklardan önce geldiği kabul edilmeli ve uygulanmalıdır*. **Madde 2** – <u>İnsanın Üstünlüğü</u>: İnsanın menfaatleri ve refahı, bilim veya toplumun saf menfaatlerinin üstünde tutulacaktır.

Burada bir bebek için karar verme yetkisi anne dahil kimsede olmaz, doğal yaşam hakkı önceliklidir: *Yaklaşım olarak 10 gebelik Haftasına kadar, anne ve bebek hakkı bütünleşmiş, embriyonik yapıda, ancak fetus olunca, 10 haftadan sonra ayrılmıştır, ancak annenin sağlığı söz konusu olursa bebek erken doğurtulabilir*. **Madde 6** – Muvafakat Verme Yeteneği Olmayan Kişilerin Korunması: <u>1 Muvafakat verme yeteneğine sahip olmayan bir kimse üzerinde tıbbî müdahale, aşağıdaki 17 ve 20'nci maddelere uygun olarak, sadece onun doğrudan yararı için yapılabilir.</u>

2 Yasal olarak bir müdahaleye muvafakat verme yeteneği bulunmayan bir küçüğe, sadece temsilcisinin veya kanun tarafından belirlenen yetkili makam, kişi veya kurumun izni ile müdahalede bulunulabilir. Küçüğün fikri, yaşı ve olgunluk derecesiyle orantılı bir şekilde artan belirleyici bir etken olarak dikkate alınmalıdır.

3 Bir yetişkin, yasal olarak akıl hastalığı, bir hastalık veya benzer nedenlerden dolayı müdahaleye muvafakat etme yeteneğine sahip değilse, ancak temsilcisinin veya kanun tarafından belirlenen yetkili makam, kişi veya kurumun izni ile müdahalede bulunulabilir. İlgili kişi, mümkün olduğu kadar izin verme sürecine katılmalıdır.

4 Madde 5'de belirtilen bilgiler, benzer koşullarda yukarıda 2'nci ve 3'üncü paragraflarda belirtilen temsilci, yetkili makam, kişi veya kuruma da verilmelidir.

5 Yukarıda 2'nci ve 3'üncü paragraflarda belirtilen izin, ilgili kişinin menfaatine daha uygun olacaksa her zaman geri çekilebilir.

10 Gebelik Haftası, embriyonik dönem dışında annenin bile karar verme yetkisi yok ise, hekimler yaşam hakkı çerçevesinde, anne sağlığı için prematür doğumu öngörebilirler. Ancak bakılabilecek düzeyde bir yerde yapılmalıdır: *Yaklaşım olarak her şartta yaşam*

hakkı sağlanmalıdır. **Madde 17 – Araştırmaya Muvafakat Verme Yeteneği Olmayan Kişilerin Korunması**

Acil durumda uzmanlık değil, genel tıp bilgileri içinde yaklaşım gerekir, doğum oluyorsa, arabanın içinde olan doğumlara da müdahale edilmeli, gerekirse canlandırma da yapılmalıdır, hekimlikte bu düzeyde mesleki beceriler eğitimi verilmelidir: *Yaklaşım olarak acil müdahale eğitimi zorunlu kapsamındadır*. **Madde 8** – Acil Durum: Acil bir durum nedeniyle uygun muvafakat alınamadığında, ilgili kişinin sağlığı için gerekli olan herhangi bir tıbbî müdahale derhal yapılabilir.

NEONATOLOJİ AÇISINDAN: Bireysel haklar üstündür. Annenin yaşama hakkı elbette gebelikte önceliklidir, ancak yapılacak prematüre sezaryen, bebeğe bakılabilecek ortam ve uygun Yoğun Bakım Ünitesi olan yerde olmalıdır.

- ## 2001 Barcelona Anne/Bebek Hakları

Bebek anomalili bile olsa, yaşam hakkı vardır, aile istemez ise Devlet bakar: *Yaklaşım olarak, gebelikte bebek hangi ortamda olursa olsun, yaşam hakkı vardır ve bakım aile yapmasa da Devlet kurumlarına düşmektedir*. Uluslararası İnsan Hakları Bildirgesindeki insan hakları yaşamın tüm evrelerini tanımlar: *Gebe bir kadının yaşamla bağdaşmayan anomalili bebeği taşıyorsa, gebeliğe devam etme hakkı veya her ülkede yasal sınırlar içinde gebeliğin tahliyesine, rıza gösterme hakkı vardır*
Yaşam sınırları altında olan immatür herhangi bir yenidoğanı canlı tutmak için gayret gösterilmemelidir. Bu olgularda, doğumun yapıldığı yerel, sosyal ve ekonomik durumlar hukuksal hak edişe başvurmadan önce dikkate alınmalıdır.
NEONATOLOJİ AÇISINDAN: Bebeğin hakları anne isteğine göre oluşmayacağını vurgulamaktadır.

- ## 2002-DNRO Florida Supreme/Yargıtay Kararı

Do not resuscitate, Wikipedia[32]

A **do-not-resuscitate** order (**DNR**), also known as **Do Not Attempt Resuscitation** (**DNAR**), **Do Not Attempt Cardiopulmonary Resuscitation** (**DNACPR**[3]), **no code**[4][5] or **allow natural death**, is a medical order, written or oral depending on the jurisdiction, indicating that a person should not receive cardiopulmonary resuscitation (CPR) if that person's heart stops beating.[5] Sometimes these decisions and the relevant documents also encompass decisions around other critical or life-prolonging medical interventions.[6] The legal status and processes surrounding DNR orders vary in different polities. Most commonly, the order is placed by a physician based on a combination of medical judgement and patient involvement.[7]

Hastanın daha önceden beni canlandırma yapmayın talebi olarak tanımlanır, Ülkemizde ben intihar edeceğim sakın yaklaşmayın gibi bir yaklaşım olup kabul edilmesi olanaksızdır.
NEONATOLOJİ AÇISINDAN: Bir kimsenin yaşayıp yaşamayacağı bilinmez, ama onu yaşatmak hekimliğin işlevidir. Rıza erişkinde dikkate almak olası iken, bebekler için böyle bir gerekçe olmaz, ailenin rızası ve talebi de geçerli olamaz. Aile talep ederse, bebek Devlet bakımına alınabilir.

- ## 2002 ROMA Sözleşme

Civil Liberties kavramında civil vatandaşlık olarak tanımlanmakta, bizler ise birey hakkı olarak görmekteyiz. Burada insanlar arasına ayırım olmayacağı vurgusu ile,

tanımladığımız birel, kişi hakları en üst gözetilmesi, sağlanması gereken olarak irdelenmelidir: *Yaklaşım olarak hak edişe göre tüm bireylere hakları verilmelidir*. ***Bu haklar vatandaşlığın üzerindedir***
NEONATOLOJİ AÇISINDAN: Her gebeliğin sağlıklı olması ve yaşamının sağlanması temel olmalıdır.

- ## 2002 AB Kadına işkence Kadınlara Karşı Ayrımcılığın Önlenmesi Bildirgesi

Bildirge özeti
Bildirge 11 ana maddeden oluşur. Madde başlıkları aşağıda verilmiştir.[3]

- **Madde 1**, kadınlara karşı ayrımcılığın adaletsiz olduğunu ve insan onuruna karşı bir suç teşkil ettiğini ilan eder.
- **Madde 2**, kadınlara karşı ayrımcılık yapan uygulamaların kaldırılması, yasa önünde eşitliğin tanınması ve devletlerin ayrımcılığa karşı mevcut Birleşmiş Milletler insan hakları belgelerini onaylamaları ve uygulamaları için çağrıda bulunmaktadır.
- **Madde 3**, kadınlara karşı her türlü önyargıyı ortadan kaldırmaya yönelik eğitim verilmesi çağrısında bulunmaktadır.
- **Madde 4**, kadınları seçme hakkı ve seçilme dahil olmak üzere tüm seçim haklarından yararlanmaya çağırmaktadır. Ayrıca kadınların kamuda çalışma hakkı bu çağrıya dahildir.
- **Madde 5**, uyruklarını değiştirmek isteyen kadınların erkeklerle eşit haklara sahip olduğu çağrısında bulunmaktadır.
- **Madde 6**, kadınların medeni hukuk karşısında, evlilik ve boşanma konusunda erkeklerle tam eşitliğe sahip olması çağrısında bulunmaktadır. Ayrıca çocuk evliliklerinin yasadışı ilan edilmesini talep etmektedir.
- **Madde 7**, ceza kanununda cinsiyet ayrımcılığının ortadan kaldırılmasını talep etmektedir.
- **Madde 8**, devletleri her tür kadın ticareti ve fuhuş ile mücadele etme çağrısında bulunmaktadır.
- **Madde 9**, cinsiyete bakılmaksızın eşit eğitim hakkını vurgular.
- **Madde 10**, istihdamda ayrımcılık yapılmaması, eşit işe eşit ücret ve doğum izni dahil olmak üzere işyerinde eşit haklar talep etmektedir.
- **Madde 11**, devletleri bu bildirgenin maddelerini uygulama çağrısında bulunmaktadır.

ÖZET:
- Kadınlarda insan türünü oluşturan olup karşı ayrımcılık adaletsizdir
- Ayrımcılık yapan uygulamaların kaldırılması, yasa önünde eşitliğin tanınması
- Kadınlara karşı olan önyargıyı ortadan kaldırmaya yönelik eğitim verilmesi
- Kadınların tüm seçim haklarından yararlanmaya çağırmaktadır
- Uyruklarını değiştirmek isteyen kadınların erkeklerle eşit haklara sahip olduğu
- Medeni hukuk karşısında, evlilik ve boşanma konusunda erkeklerle tam eşitliğe sahip olması ve Çocuk Evliliklerinin yasa dışı kabul edilmesi
- Ceza kanununda cinsiyet ayrımcılığının ortadan kaldırılması
- Kadın ticareti ve fuhuş ile mücadele etmelidir
- Eşit eğitim hakkı

- İstihdamda ayrımcılık yapılmaması, eşit işe eşit ücret ve doğum izni dahil olmak üzere işyerinde eşit haklar verilmesi
- Devletlerin bildirgenin maddelerini uygulaması

NEONATOLOJİ AÇISINDAN: Gebe ve annenin özel ve özgün yeri ve ayrıca bebeğe sevgi ile bakması, emzirmesi ile sadece onun yapabileceği işler olduğu için eşit değil, pozitif destek ve yaklaşımlarda öngörülmelidir.

• 2006 BM Özürlü Hakları

Burada özürlü değil, engelli olarak ele alınmalıdır, onlara yaşam hakkı tanımak ötesinde engellerin kaldırılması veya yönetilmesi için her türlü yardım yapılmalıdır: *Yaklaşım olarak özür onlara bu şekilde yaklaşanlardır ve her türlü yaşam ve destek verilmesi haklarıdır*. Sözleşme, Birleşmiş Milletler Genel Kurulu'nun 13 Aralık 2006 tarihli ve A/RES/61/106 tarihli kararıyla kabul edilmiş ve 3 Mayıs 2008 tarihinde yürürlüğe girmiştir. Türkiye, Sözleşme 'yi 30 Mart 2007 tarihinde imzalamıştır. Sözleşme'nin onaylanması 3 Aralık 2008 tarih ve 5825 sayılı Kanunla uygun bulunmuştur.
NEONATOLOJİ AÇISINDAN: IDH: impairments, disabilities and handicaps: Bozukluklar, yapmamazlık/engelli olmak ve eksiklik gibi durumları olanlar için yaşam hakkı ile tüm sağlık boyutlarının temininin bir zorunlu görev olduğu vurgusu vardır.

• 2006 Avrupa Sözleşmesi

Avrupa Konsey Kılavuzu: YAŞAM HAKKI-(2006)

- Yaşam hakkı ilk sayılan haktır. Alındıktan sonra geri verilemez
- **İlgili Madde katı şekilde yorumlanmalıdır**
- Doğmamışın yaşamı da korunmalıdır
- **Ölüm olayları araştırılmalı (Yükümlülük)**
- **Yaşamın ne olduğu ne zaman başladığı ve sona erdiği konuları açıklığa kavuşmamıştır**
- **Hamileliğin sonlanması sadece annenin özel hayatının bir meselesi şeklinde değerlendirilemez**
- Kişi aksini tercih etmedikçe, ölüme yaklaşmış veya ölmek üzere olan bir kişiye yan etkisi bireyin yaşamını kısaltsa dahi yeteri kadar ağrı kesici verilmeli ve hafifletici tedavi uygulanmalıdır.
- **Ölüme yaklaşmış veya ölmek üzere olan kişilerin ölme arzularının tek başına ölümü amaçlayan eylemleri icra etmeyi hukuken haklı göstermeyeceğini tanıyarak**
- **Yaşam tehlikede olmadıkça ölümcül güç kullanılamaz** (mülkü korumak amaçlı öldürme kabul edilemez)
- **Güç kullanma mutlak şekilde gerekli olandan daha fazla olmamalıdır.**
- Yaşam hakkını koruma yükümlülüğü hastaneler açısından hastalarını korumak denetim ve yönetiminin olması şartı ve hastanelerde meydana gelen ve ilgili tıbbi kişinin sorumluluğunu gerektirebilecek ölüm nedeninin tespit edilmesinde **etkili bir uyarı sisteminin oluşturulması yükümlülüğünü de içermektedir**.

ÖZET: Bazı vurgular yapılmaktadır.

- Yaşam hakkı, bir tanımlama ile varlık hakkıdır, alındıktan sonra geri verilemez, tazmin edilemez, gebelikte de bu sağlanmalıdır.
- Yaşam Hakkı katı şekilde uygulanmalı, ölüm durumunda da araştırmalı, sorgulanmalıdır.
- Yaşam kavramı soyut olduğu için ne zaman başlar ne zaman sonlanır açık değildir.
- Gebeliğin sonlanması sadece anne değil, gelecek nesil boyutu ile insanlığı ilgilendirir.
- Yaşamın sonlanması aşamasında olan kişiye bile ağrıları giderilmeli ama yaşamı sürdürülmelidir.
- Yaşamın sonuna geldiği sanılanların bile eylemleri, yaşamayı sonlandırıcı olamaz, bu müsaade edilemez.
- Kolluk güçleri, polisler ve askerlerde bile yaşam tehlikeye girmedikçe öldürücü ateş edilemez.
- Yaşamda destek ancak gereken, dayanağı kadardır, fazla kullanılmaz, yaşamı tehlikeye atıcı yaklaşımlar yapılamaz.
- Ölüm ve tıbbi açıdan ölümden sonra da sorgulama yapılmalı, bunun için etkili uyarı sistemleri, önlemleri de alınmalıdır.

NEONATOLOJİ AÇISINDAN: Yaşam Hakkının hiçbir şekilde bahaneler ile ortadan kaldırılamayacağı açıktır. Aynı zamanda tüm ölümler için bir açıdan Mortalite Toplantıları ile sorgulanması gerektiği belirtilmektedir.

AVRUPA SÖZLEŞMESİ

- Avrupa Anayasasında ilk (birinci) "TEMEL"ı temsil eden Temel Haklar Ana Sözleşmesi, ***Bu haklar vatandaşlığın üzerindedir ve kişilere aynı şekilde bağlanmaktadır***. 51.maddeye göre ulusal kanunlar Nice Statüsüne uygun olmalıdır … ulusal anayasayı geçersiz kılmamalıdır (Madde 53).
Sonuç olarak, Nice Statüsünde öne sürülen şartlardaki açıkların kapatılabilmesi için bazı haklar geniş kapsamlı olarak yorumlanmalıdır.

- Statünün 35. maddesi sağlığı koruma hakkı vermektedir "koruyucu sağlık tedavisi hakkı ve ulusal kanun ve uygulamalar tarafından oluşan şartlar kapsamında tedaviden yararlanma hakkı". 35. madde Birliğin "insan sağlığının yüksek düzeyde korunmasını" garanti etmesi gerektiğini belirtir. Burada sağlık hem bir birey ve sosyal iyilik olarak hem de sağlık tedavisi anlamına gelmektedir. Bu tanım (formül) ulusal hükümetler için bir yönlendirme (kılavuz) standardı ortaya sermektedir: hizmet açısından çeşitli sistemlerin kapasite farklarına bakmaksızın "garanti edilen minimum standartlar" katında durmayın her zaman hedefiniz en yüksek düzey olsun.

AVRUPA Konsey Kılavuzu 2006

- - Statünün 35. maddesi sağlığı koruma hakkı vermektedir
- - 35.maddeye ilaveten Temel Haklar Statüsünde dolaylı veya direkt olarak hasta hakları ile ilgili burada tekrarlamaya değer birçok şart ve koşullar mevcuttur:
- ---insan haysiyetinin dokunulmazlığı (madde 1)
- ---ve yaşama hakkı (madde 2);
- ---doğruluk hakkı (madde 3);
- ---güvenlik hakkı (madde 6);
- ---kişisel verilen korunma hakkı (madde 8);
- ---ayrım gözetilmemesi hakkı (madde 21);

- ---kültürel, dini ve dil farklılığı hakkı (madde 22);
- ---çocuk hakları (madde 31);
- ---yaşlı hakları (madde 25);
- ---eşit ve adil çalışma şartları hakkı (madde 31);
- ---sosyal güvenlik ve sosyal yardım hakkı (madde 34);
- ---çevresel korunma hakkı (madde 37);
- ---tüketici koruma hakkı (madde 38);
- ---taşınma ve ikamet özgürlüğü (madde 45).

NEONATOLOJİ AÇISINDAN: Burada. insan haysiyetinin dokunulmazlığı (madde 1), yaşama hakkı (madde 2) temel alındığında, bunun vatandaşlık üzerinde, ulusal Anayasal Hukuk düzeni bile geçersiz kalacak prensipler olduğu vurgusu vardır.
Hekimler sağlığı garanti edemezler ama gerekenleri bilimsel dayanak üzere yapmalıdırlar. Birey kadar, sosyal iyilik de gündeme gelmektedir.
Yaşam Hakkı elinden alan kişi, yaşaması durumunda kazanacağı haklara da sahip olmayacağı için, davalarda bu konular gündeme gelmektedir. Bunlar: doğruluk hakkı (madde 3); güvenlik hakkı (madde 6); kişisel verilen korunma hakkı (madde 8); ayrım gözetilmemesi hakkı (madde 21); kültürel, dini ve dil farklılığı hakkı (madde 22); çocuk hakları (madde 31); yaşlı hakları (madde 25); eşit ve adil çalışma şartları hakkı (madde 31); sosyal güvenlik ve sosyal yardım hakkı (madde 34); çevresel korunma hakkı (madde 37); tüketici koruma hakkı (madde 38); taşınma ve ikamet özgürlüğü (madde 45).

Avrupa İnsan Hakları Mahkemesinin ilk iki temel ilkesi

Burada civil vatandaşlık olarak tanımlayanlar olabilir, ancak 2002 Roma Sözleşmesi ile bunun daha üst olduğu, her bireye hak olduğu vurgusu vardır: *Yaklaşım olarak her birey, doğmamış bile eşit haklarda kabul edilerek, buna göre uygulamalar yapılmalıdır*. 1) **Birey hakları önceliklidir "*Civil liberties*"**,

Burada Kamu, kurum ve kuruluşların yaptığı zorlamalar da kabul edilemez denilmektedir: *Yaklaşım olarak birey hakkı kamu hakkının da üstündedir*. 2) **Bireyin hakları her türlü zorlamalara karşın korunmalıdır: "*the right to legal recourse when their rights have been violated, even if the violator was acting in an official capacity*"**.

Sivil özgürlükler, Wikipedia[33]

Sivil özgürlükler, liberal hükûmetlerin yasama ya da adli yorum yoluyla tanıdığı garantileri ve özgürlükleridir. Terimin kapsamı ülkeler arasında farklılık gösterse de, sivil özgürlükler vicdan özgürlüğü, basın özgürlüğü, din özgürlüğü, ifade özgürlüğü, toplantı ve gösteri özgürlüğü, güvenlik ve özgürlük hakkı, gizlilik hakkı ile kanun ve gerekli süreç çerçevesinde eşit muamele görme hakkı, adil yargılanma hakkı ve yaşam hakkı içerebilir. Diğer sivil özgürlükler mülk edinme hakkı, kendini savunma hakkı ve bedensel dürüstlük hakkını içerir. Sivil özgürlükler ve diğer özgürlük türleri arasındaki ayrımlarda, pozitif özgürlük ve haklar ile negatif özgürlük ve haklar arasında ayrımlar bulunmaktadır.
NEONATOLOJİ AÇISINDAN: Burada sayılanların oluşması için öncelikle prematürelere yaşam hakkı sağlanmalı ve bakım sürdürülmelidir.

T.C. Etik/Hukuk Yapılanması (ulusal)

Öncelikle ötenazi aktif veya pasif olan intihar/öldürme kapsamında alınması ile TCK göre kasıtlı öldürmeye girmektedir ve önemli bir ceza yükümlülüğü olur, emir, kural ve diğer zorlamalar TCK ve Anayasaya göre geçerli değildir.

- **1928 Tababet ve Şuabatı Sanatlarının Tarz-ı İcrasına Dair Kanun**

Burada ağırlıklı olarak sağlık hizmet yapılanmasından söz edilmektedir: *Yaklaşım olarak büro hizmetleri vurgusu vardır, felsefe, etik ilkeler konusu 1960 Deontoloji Nizamnamesindedir*. Hekimlik diploması olmayanların herhangi tıbbi yaklaşım yapamayacağım ve bunun yalnız kanun ve mevzuat ile olmasının, kısaca uygulamalarının yasal boyuta taşınmasıdır.
NEONATOLOJİ AÇISINDAN: Burada bu konu irdelenmese bile, sağlık yapılanması söz konusu edildiği için ilgili kapsamda ele alınabilir.

- **1959-1960 Deontoloji Nizamname**

Burada etik yaptırımları içerek bir boyut olup, bunun bir etik felsefe olduğu algılanmalıdır: *Yaklaşım olarak* "Tabip ve diş tabiplerinin, deontoloji bakımından riayetle mükellef oldukları kaide ve esaslar bu Nizamnamede gösterilmiştir; **Madde 1**.". 6O23 sayılı Türk Tabipleri Birliği Kanununun 7'nci maddesi mucibince tabip odalarına kayıtlı bulunan tabip ve diş-tabipleri, bu Nizamname hükümlerine tabidirler.

Deontoloji Nizamnamesi

Burada iki vurgu vardır: 1) görev insan sağlığı, hayatı ve şahsiyetini ihtimam ve hürmet göstermek, 2) Eşitlik ilkesidir: *Yaklaşım olarak kim olursa olsun eşit ve ihtimam ile hürmetli davranmak olmalıdır vurgusu öne alınmaktadır*. **Madde 2** – Tabip ve diş tabibinin başta gelen vazifesi, insan sağlığına, hayatına ve şahsiyetine ihtimam ve hürmet göstermektir. Tabip ve diş tabibi; hastanın cinsiyeti, ırkı, milliyeti, dini ve mezhebi, ahlaki düşünceleri, karakter ve şahsiyeti, içtimai seviyesi, mevkii ve siyasi kanaati ne olursa olsun, muayene ve tedavi hususunda azami dikkat ve ihtimamı göstermekle mükelleftir.

NEONATOLOJİ AÇISINDAN: Burada bir ayırım yoktur, gebelik dahil, doğmamışın hakkı dahil, her bireye eşit yaklaşım öngörülmektedir. Bu bir robot gibi değil, şahsiyetli ve hürmetli bir yaklaşımla yapılmasını öngörmektedir.

Acil olgulara müdahale etmesi zorunluluk taşıdığı için, uzman olmasa da Mesleki Beceriler boyutu ile eğitilmeli, beceri kazanmalıdır. Her yerde doğum olgusu olabilir, karışmama durumunu yapamaz, partner olarak medikal yaklaşım, acil yardım gelene kadar yapmalıdır, bunu da öğrenmelidir: *Yaklaşım olarak acil durumlar için Tıbbi Eğitim boyutu oluşturulmaktadır, ben bilmiyorum diyemez*. **Madde 3** – Tabip, vazifesi ve ihtisası ne olursa olsun, gerekli bakımın sağlanamadığı acil vakalarda, mücbir sebep olmadıkça ilk yardımda bulunur. Diş tabibi de kendi sahasında aynı mükellefiyete tabidir.

NEONATOLOJİ AÇISINDAN: Doğum her boyutta olacağı için, örneğin arabanın arka koltuğunda, asansörde bu durumla karşılaşabileceği algısında olmalıdır.

Bir durumda hastanın durumu üzerine açıklama, ancak Savcı veya mahkemelerde söz konusu olabilir. Hastanın kendisi yaparsa yapar: *Yaklaşım olarak hastaya sorun, o söylerse söyler deyip geçiştirmelidir*. **Madde 4** – Tabip ve diş tabibi, meslek ve sanatının icrası vesilesiyle muttali olduğu sırları, kanuni mecburiyet olmadıkça, ifşa edemez. Tıbbi

toplantılarda takdim edilen veya yayınlarda bahis konusu olan vakalarda, hastanın hüviyeti açıklanamaz.

NEONATOLOJİ AÇISINDAN: Bir doğum ve bebeğin durumu konusunda söylenecekler, aileye yönlendirme ancak olabilir.

Burada Perinatoloji boyutu Neonatoloji ile birlikte olduğu dikkate alınmalıdır, doğumu ve doğum sonu bakımı aynı ekip yapmalıdır. Perinatoloji Konseyi de birlikte oluşturulmalıdır: *Yaklaşım olarak Neonatoloji ekip çalışmasıdır*. **Madde 5 –** Sağlık müesseselerinde tatbik olunan usul ve kaideler mahfuz olmak üzere, hasta; tabibini ve diş tabibini serbestçe seçer.

Hekim, Tıp mesleğinde sadece bilimsel veri ve gerekçe ile buna göre, dayanak tutarak yaklaşım yaptığı, burada da birey olarak sorumlu olduğu, tesir kabul etmediği için doğrudan üstüne almaktadır: *Yaklaşım olarak olgu temelinde bilimsel yaklaşım yapacağını ve burada da sorumluluk doğrudan kendisinde olduğunu kabul etmektedir*. **Madde 6 –** Tabip ve diş tabibi, sanat ve mesleğini icra ederken, hiçbir tesir ve nüfuza kapılmaksızın, vicdani ve mesleki Kanaat'ına göre hareket eder.

Bilimde her olguya göre özel ve özgün olduğuna göre, burada karar, bir buluş, innovasyon olarak görüldüğüne göre kendi kararına göre davranacaktır. Bu açıdan olgu sunumları önemlidir: *Yaklaşım olarak sorumluluk hekimde ise, doğrudan serbest kendi kararına göre yaklaşması da doğaldır*. Tabip ve diş tabibi, tatbik edeceği tedaviyi tayinde serbesttir.

Bir hekim, salık elemanı sadece mesleğinde değil, tüm yaşamı boyunca etik ilkeler içinde olması gerektiği vurgusu vardır: *Yaklaşım olarak hekim bu mesleği seçince, artık etik dışı hareketlerden de kaçınması gerekeceğini bilir*. **Madde 7 –** Tabip ve diş tabibi sanat ve mesleğinin icrası dışında dahi olsa, meslek ahlak ve adabı ile telif edilemeyen hareketlerden kaçınır.

HEKİMLİK MESLEK ETİĞİ KURALLARI (1998 Türk Tabipler Birliği" Hekimlik ve Meslek Etiği Kuralları" TTB'nin 47. Büyük Kongresi'nde kabul edilmiştir)

Türk Tabipler Birliği 1960 tarihli Deontoloji Nizamnamesini yeniden irdelemiş ve aynen uygulanmasını talep ettikleri izlenmiştir.

Burada ek olarak sağlık yaklaşımları eklenmiştir: hastalığı önlemek, bilimsel olarak iyileştirme denilmektedir, bunun için devamlı gelişimleri takip etmesi, kendi eğitimini sağlaması vurgulanmaktadır: *Yaklaşım olarak sağlıklı olmak, sağlığın devamlılığını temin etmek, kontrol gibi hususlar eklenmemiştir*. Hekimin Görev ve Ödevleri: **Madde 5-**Hekimin öncelikli görevi, hastalıkları önlemeye ve bilimsel gerekleri yerine getirerek hastaları iyileştirmeye çalışarak insanın yaşamını ve sağlığını korumaktır. Meslek uygulaması sırasında insan onurunu gözetmesi de hekimin öncelikli ödevidir. Hekim, bu yükümlülüklerini yerine getirebilmek için, gelişmeleri yakından izler.

Burada bilgilendirme hususları vurgulanmaktadır: *Yaklaşım olarak yapılacaklar tanımlanmaktadır*. Aydınlatılmış Onam: **Madde 26-**Hekim hastasını, hastanın sağlık durumu ve konulan tanı, önerilen tedavi yönteminin türü, başarı şansı ve süresi, tedavi yönteminin hastanın sağlığı için taşıdığı riskler, verilen ilaçların kullanılışı ve olası yan etkileri, hastanın önerilen tedaviyi kabul etmemesi durumunda hastalığın yaratacağı sonuçlar, olası tedavi

seçenekleri ve riskleri konularında aydınlatır. Yapılacak aydınlatma hastanın kültürel, toplumsal ve ruhsal durumuna özen gösteren bir uygunlukta olmalıdır. Bilgiler hasta tarafından anlaşılabilecek biçimde verilmelidir. Hastanın dışında bilgilendirilecek kişileri, hasta kendisi belirler. Sağlıkla ilgili her türlü girişim, kişinin özgür ve aydınlatılmış onamı ile yapılabilir. Alınan onam, baskı, tehdit, eksik aydınlatma ya da kandırma yoluyla alındıysa geçersizdir.

Burada acil durumlarda da onam/rıza şartı belirtilmektedir, 112 geldiğinde kimden onay alacaktır ki: *Yaklaşım olarak hekimlerin en başta gelen yapmaları acil durumlar olmaktadır*. **Acil durumlar** ile, hastanın reşit olmaması veya bilincinin kapalı olduğu ya da karar veremeyeceği durumlarda yasal temsilcisinin izni alınır. Hekim temsilcinin izin vermemesinin kötü niyete dayandığını düşünüyor ve bu durum hastanın yaşamını tehdit ediyorsa, durum adli mercilere bildirilerek izin alınmalıdır. Bunun mümkün olmaması durumunda, hekim başka bir meslektaşına danışmaya çalışır ya da yalnızca yaşamı kurtarmaya yönelik girişimlerde bulunur. Acil durumlarda müdahale etmek hekimin takdirindedir. Tedavisi yasalarla zorunlu kılınan hastalıklar toplum sağlığını tehdit ettiği için hasta veya yasal temsilcisinin aydınlatılmış onamı alınmasa da gerekli tedavi yapılır.
Hasta vermiş olduğu aydınlatılmış onamı dilediği zaman geri alabilir.

- ## 1980 Anayasa 17. Maddesi

Burada zorunluluk, kısaca kanun ile tanınan haller dışında kişilik hakkı tanımlanmaktadır. Nitekim ölüm orucunda açılan davada bilinç yitirilmesi gerekçe gösterilmiş ve dava düşmüştür. Ancak uzun süreli aç olanlarda gelişen tablo nedeni ile kurtarılma zor ve beyin hasarı gözlenmektedir: *Yaklaşım olarak hekimlik bilimi öngörüleri yerindedir, ama yapmayın, etmeyin diyenlerin hukuk, kanun dayanakları yoktur*. **Madde 17** – Herkes, yaşama, maddi ve manevi varlığını koruma ve geliştirme hakkına sahiptir. Tıbbi zorunluluklar ve kanunda yazılı haller dışında, kişinin vücut bütünlüğüne dokunulamaz; rızası olmadan bilimsel ve tıbbi deneylere tabi tutulamaz.

Yasalarda kanuni dayanağı olmayan emirler yapılamaz, ötenazi daha önce tanımlanmamasına karşın, yine de bir suç niteliğinde olmuştur: *Yaklaşım olarak bebeklerinin ventilatörden çıkarılmasını, eziyet gördüğü iddiasında bulunan aileler tutuklanmış, bebekleri de devlet bakımına alınmıştır*. **J. Kanunsuz emir: MADDE 137-** Kamu hizmetlerinde herhangi bir sıfat ve suretle çalışmakta olan kimse, üstünden aldığı emri, yönetmelik, tüzük, kanun veya Anayasa hükümlerine aykırı görürse, yerine getirmez ve bu aykırılığı o emri verene bildirir. Ancak, üstü emrinde ısrar eder ve bu emrini yazı ile yenilerse, emir yerine getirilir; bu halde, emri yerine getiren sorumlu olmaz. Konusu suç teşkil eden emir, hiçbir suretle yerine getirilmez; yerine getiren kimse sorumluluktan kurtulamaz.

- ## 1983 Sterilizasyon

Gebelikte düşük yaptırma konusu, çeşitli sosyal tartışma konusu olmuştur. Batı görüşlerinde olanlar her türlü nedenle bir gebeliğin sonlanması veya termine edilmeyi gündeme getirmişlerdir.
Bu konuda TBMM kanun çıkarmadan önce Diyanetten görüş istemiş, zaten Atatürk oluşturulması ve Osmanlıda da Divana görüş ileten bir yapı olmuştur. Bu 622 Medine Antlaşması boyunca yapılandır, şeriat bizde Katolik yaklaşımları uygulanmamıştır. Bu görüşte ekonomik gerekçe kabul edilemez, Devlet bakmakla yükümlüdür denilerek, embriyonik düzeyde, kemikleşmeden oluşan, ruh üflenmeden bir süreç dışında yapılabileceğini

vurgulamışlardır. Anne sağlığı ise elbette öncelikli gerekçe tutulmuştur. Bu açıdan TBMM benzer bir yapı ile, embriyonik dönem dışında, anne ve bebek hakları bütünleşmiş iken, daha sonra fetal yaşamda haklar ayrılarak, yaşam hakkına hürmet edilmesi öngörülmüştür. Çoklu gebeliklerde de bir bakıma birisinin termine edilmesi, etik seçme boyutu olarak tanımlanmıştır. Bu karar tüm İslam Dünyasında da örnek alınarak benzer uygulama içine girilmiştir. Batıda termine edilebilir derken, hukuk yaklaşımları ise tersini vurgulamaktadırlar. Jüri sistematiği olduğu için, ortak akıl, kamu vicdanı henüz suç olarak nitelememekte, ancak ülkemizde yasal suçtur.

Burada 10-12 hafta embriyonik dönemi ifade etmektedir: *Yaklaşım olarak anne ve bebek hakkı bütünleştiği için rıza anne verebilmekte, ancak yasalarımıza göre babanın da rızası gerekmektedir. Gebeliğin onuncu haftası doluncaya kadar kadının sağlığı açısından tıbbi sakınca olmadığı takdirde, istek üzerine rahim tahliye edilir*

Burada yayınlanan liste ile durumlar, sorunlar ve hastalıklar tanımlanarak, gerekçe ve dayanaklar bilimsel kesin verilere dayandırılmaktadır: *Yaklaşım olarak karar sıklıkla Perinatoloji Konseyinde alınmaktadır. Gebelik süresi on haftayı geçen kadınlarda, rahim tahliyesi yapılamaz, ancak, Tüzük'e ekli (2) sayılı listede sayılan hastalıklardan birinin bulunması halinde kesin klinik ve laboratuvar bulgulara dayanan, gerekçeli raporlarla saptanması zorunludur*

- **1987 Sağlık Hizmetleri Temel Kanunu (3359 sayılı yasa)**

Temel Esaslar

Madde 3 – Sağlık hizmetleriyle ilgili temel esaslar şunlardır:

Tüm ülkede, eşit, kaliteli ve verimli hizmet sunmak görev edinilmektedir: *Yaklaşım olarak yapılandırma ve onay Bakanlık yetkisindedir*. a) Sağlık kurum ve kuruluşları yurt sathında eşit, kaliteli ve verimli hizmet sunacak şekilde Sağlık ve Sosyal Yardım Bakanlığınca, diğer ilgili bakanlıkların da görüşü alınarak planlanır, koordine edilir, mali yönden desteklenir ve geliştirilir.

Burada koruyucu sağlık hizmetleri ön plana alınmaktadır: *Yaklaşım olarak kaynak israfı ve işlemez bir kapasite olmama gerektiği ve yaklaşımlarda hizmet satın alınması, özel sektöründe devreye girmesi öngörülmektedir*. B b) Koruyucu sağlık hizmetlerine öncelik verilmek suretiyle kamu ve özel bütün sağlık kurum ve kuruluşlarının kurulması ve işletilmesinde kaynak israfı ve âtıl kapasiteye yol açılmaksızın gerektiğinde hizmet satın alınarak kaliteli hizmet arzı ve verimliliği esas alınır. Sağlık ve Sosyal Yardım Bakanlığı ilgili Bakanlığın muvafakatini alarak, kamu ve özel bütün sağlık kurum ve kuruluşlarına koruyucu sağlık hizmeti görevi verir ve bu kurum ve kuruluşların bütün sağlık hizmetlerini denetler.

Burada hizmetin tam olması için dengeli dağılım vurgusu vardır: *Yaklaşım olarak ücretlendirme de Bakanlık yetkisindedir*. c) Bütün sağlık kurum ve kuruluşları ile sağlık personelinin ülke sathında dengeli dağılımı ve yaygınlaştırılması esastır. Sağlık kurum ve kuruluşlarının kurulması ve işletilmesi bu esas içerisinde Sağlık ve Sosyal Yardım Bakanlığınca düzenlenir. Bu düzenleme ilgili Bakanlığın görüşü alınarak yapılır. Gerek görüldüğünde özel sağlık kuruluşlarının her türlü ücret tarifeleri sağlık ve Sosyal Yardım Bakanlığınca onaylanır. Kamu kurum ve kuruluşlarına ait sağlık kuruluşları veya sağlık

işletmelerinde verilen her türlü hizmetin fiyatları Sağlık ve Sosyal Yardım Bakanlığınca tespit ve ilan edilir.

d) iptal edilmiştir.

Sağlık tesislerinin işlevlerinin tam olması: eğitim, denetim ve değerlendirme boyutunun oto kontrol ile de işlevsel olması beklenilmektedir: *Yaklaşım olarak eksiksiz işlev tanımlanmaktadır*. e) Tesis edilecek eğitim, denetim, değerlendirme ve oto kontrol sistemi ile sağlık kuruluşlarının tespit edilen standart ve esaslar içinde hizmet vermesi sağlanır.

İşlevlerin kayıt ve bildirimi kesin ve mutlaka yapılmalıdır: *Yaklaşım olarak kayıt, denetim ve irdeleme imkânı demektir*. f) Herkesin sağlık durumunun takip edilebilmesi ve sağlık hizmetlerinin daha etkin ve hızlı şekilde yürütülmesi maksadıyla, Sağlık Bakanlığı ve bağlı kuruluşlarınca gerekli kayıt ve bildirim sistemi kurulur. Bu sistem, e-Devlet uygulamalarına uygun olarak elektronik ortamda da oluşturulabilir. Bu amaçla, Sağlık Bakanlığınca, bağlı kuruluşları da kapsayacak şekilde ülke çapında bilişim sistemi kurulabilir.

Hizmet için eğitim önemli tutulmaktadır: *Yaklaşım olarak hizmet içi eğitim, sertifikasyon üniversitelerden de alınması tanımlanmaktadır*. g) Sağlık ve Sosyal Yardım Bakanlığı; sağlık ve yardımcı sağlık personelinin yurt düzeyinde dengeli dağılımını sağlamak üzere istihdam planlaması yapar, ülke ihtiyacına uygun nitelikli sağlık personeli yetiştirilmesi amacıyla hizmet öncesi eğitim programları için Yükseköğretim Kurulu ile koordinasyonu sağlar. Serbest ya da kamu kuruluşlarında mesleklerini icra eden sağlık ve yardımcı sağlık personeline hizmet-içi eğitim yaptırır. Bunu sağlamak amacıyla üniversitelerin, kamu kurumu niteliğindeki meslek kuruluşları ile kamu kurum ve kuruluşlarının imkanlarından da yararlanır. Hizmet-içi eğitim programını ne şekilde ve hangi sürelerle yapılacağı Sağlık ve Sosyal Yardım Bakanlığınca çıkartılacak yönetmelikte tespit edilir.

h) iptal edilmiştir.

Koordinasyon önemli yer tutmaktadır: *Yaklaşım olarak modern bilimsel boyut ile teknolojinin getirilmesi ve uygulanması amaç edinilmektedir*. B i) Sağlık hizmetlerinin yurt çapında istenilen seviyeye ulaştırılması amacıyla; bakanlıklar seviyesinden en uçtaki hizmet birimine kadar kamu ve özel sağlık kuruluşları ile kamu kurumu niteliğindeki meslek kuruluşları arasında koordinasyon ve iş-birliği yapılır. Sağlık kurum ve kuruluşları coğrafik ve fonksiyonel hizmet alanları, verecekleri hizmetler, yönetim, hizmet ilişki ve bağlantıları gibi konularda tespit edilen esaslara uymak ve verilen görevleri yapmakla yükümlüdürler. Çağdaş tıbbi bilgi ve teknolojinin ülkeye getirilmesi ve teşviki sağlanır.

Eğitim aşamaları olarak; hastalıklardan korunma, sağlıklı çevre, beslenme, ana çocuk sağlığı ve aile planlaması ve benzeri konularda eğitilmeleri ve takipleri kapsamaktadır: *Yaklaşım olarak bunların kendi kapsamda sertifikasyon yaklaşımları da gündeme gelmektedir*. j) Vatandaşların hastalıklardan korunma, sağlıklı çevre, beslenme, ana çocuk sağlığı ve aile planlaması ve benzeri konularda eğitilmeleri ve takipleri bütün kamu kuruluşlarının sorumluluğu, kamu kurumu niteliğindeki meslek kuruluşları, özel ve gönüllü kuruluşların iş birliği içerisinde gerçekleştirilir.

Farmakolojik tanımlanmayanların kullanımı yasak olduğu eklenerek, bu yapının da Bakanlık içinde oluştuğu vurgulanmaktadır: *Yaklaşım olarak konu hakkında devamlı bir bilgi edinilmesi önemlidir*. k) Koruyucu, teşhis, tedavi ve rehabilite edici hizmetlerde

kullanılan ilaç, aşı, serum ve benzeri biyolojik maddelerin üretiminin ve kalitesinin teşvik ve temini esas olup, her türlü müstahzar, terkip, madde, malzeme, farmakope mamulleri, kozmetikler ve bunların üretiminde kullanılan ham ve yardımcı maddelerin ithal, ihraç, üretim, dağıtım ve tüketiminin, amaç dışı kullanılmak suretiyle fizik ve psişik bağımlılık yapan veya yapma ihtimali bulunan madde, ilaç, aşı, serum ve benzeri biyolojik maddeler ile diğer terkiplerin kontroluna, murakabesine ve bunların yurt içinde ve yurt dışında ücret karşılığı kalite kontrollerini yaptırmaya, özel mevzuata göre ruhsatlandırma, izin ve fiyat verme işlerini yürütmeye Sağlık ve Sosyal Yardım Bakanlığı yetkilidir.

Özel mevzuatına göre izin veya ruhsat alınmamış ilaç ve terkiplerin üretimi, ithali, satışı ile ruhsat veya izin alınmış dahi olsa ilaç ve terkiplerin bilimsel araştırma amacıyla Sağlık ve Sosyal Yardım Bakanlığı ve ilgili kişinin rızası olmadan insan üzerinde kullanımı yasaktır.

Engelli çocuklar (ne mutlu özürlü denilmemiş) gebelikte önlenmesi ve taramalar gündeme getirilmektedir: *Yaklaşım olarak uygulamalar tümden yapılan yere sevk ile olasıdır*. l) Engelli çocuk doğumlarının önlenmesi için, gebelik öncesi ve gebelik döneminde tıbbi ve eğitsel çalışmalar yapılır. Yeni doğan bebeklerin metabolizma hastalıkları için gerekli olan testlerden geçirilerek risk taşıyanların belirlenmesine ilişkin tedbirler alınır.[1]

Rehabilitasyon konusunda da üretim dahil, Bakanlık kapsamına almaktadır: *Yaklaşım olarak ilgili daireler ile iletişimi geçmek önemlidir*. B m) Rehabilite edici tıbbi hizmetlerde kullanılan yardımcı araç ve gereçleri üretmek amacıyla, kamu kurum ve kuruluşları ile gerçek ve tüzel kişiler tarafından kurulacak kuruluşların açılış iznini vermeye Sağlık Bakanlığı yetkilidir. Bu kurum ve kuruluşların açılış izninin verilmesine, üretim ve personel standardına, işleyiş ve denetimi ile daha önce açılmış olan kurum ve kuruluşların durumlarına ilişkin esaslar Sağlık Bakanlığınca çıkarılacak yönetmelikle düzenlenir.

Bakanlığa önemli görevler düşmektedir: Bu yasa ile Bakanlık tüm sağlık organizasyonunda, özel boyutlar dahil, gündeme gelmektedir.

- ## 1989 Çocuk Hakları

1989 Çocuk Hakları

Çocuğun gerek bedensel gerek zihinsel bakımdan tam erginliğe ulaşmamış olması nedeniyle doğum sonrasında olduğu kadar, doğum öncesinde de uygun yasal korumayı da içeren özel güvence ve koruma gereksiniminin bulunduğu

NEONATOLOJİ AÇISINDAN: Doğum öncesi, gebelikte ve doğum sonrasında da her türlü bedensel, zihinsel ve sosyal destek ile özel güvenceye alınması gerektiği vurgusu vardır.

- ## 1993 İlaç Araştırmaları Hakkında Yönetmelik (2008 Yeni düzenleme)

İnsanlar üzerinde deney yapmak kesinlikle yasaktır. Burada belirtilen FAZ IIIb ve FAZ IV boyutunu kapsamaktadır. Deney etkisi ve neticesi bilinmeyen demektir. Bu zamanımızda hayvanlarda da belirli bir düzeye gelince yapılması (FAZ II) onaylanmaktadır.

Araştırmalar ancak gönüllüler üzerine yapılabilir, bu açıdan Neonatoloji ancak genel anlamda; fizyolojiyi desteklemek ve fizyopatolojiyi önlemek boyutu ile gündeme gelmektedir.

KLİNİK ARAŞTIRMALAR HAKKINDA YÖNETMELİK

Klinik boyutunda kanun yapısına getirilmesidir: *Yaklaşım olarak mutlak bu yapıda olmalı yoksa suç kapsamına alınabilecektir*. **Amaç: MADDE 1 –** (1) Bu Yönetmeliğin amacı; Avrupa Birliği standartları ve İyi Klinik Uygulamaları çerçevesinde gönüllü insanlar üzerinde gerçekleştirilecek her türlü klinik araştırmanın tasarımı, yürütülmesi, kayıtlarının tutulması, rapor edilmesi, geçerliliği ve diğer hususlarda bilimsel ve etik standartların sağlanması ve gönüllülerin bu Yönetmelik kapsamındaki haklarının korunmasına dair usul ve esasları düzenlemektir.

Burada tanımlananlar Uluslararası düzeyde bir yapılanmadır: *Yaklaşım olarak birçok ülkede olmasa da ülkemizde oluşturulmaktadır*. **Kapsam: MADDE 2 –** (1) Bu Yönetmelik; insanlar üzerinde yapılacak ilaç klinik araştırmaları, ilaç dışı klinik araştırmalar, tıbbi cihazlarla yapılan araştırmalar, yeni bir cerrahi yöntem kullanılarak yapılacak klinik araştırmalarına ilişkin her türlü klinik araştırmayı, araştırma yerlerini ve bu araştırmaları gerçekleştirecek gerçek veya tüzel kişiler ile biyoyararlanım ve biyoeşdeğerlik çalışmaları ile tedavi amaçlı denemeleri kapsar.

Gözlemsel, ilaca erken erişim gibi araştırma değil, klinik izlem ile alakalı olanlar bu kapsamda değildir: *Yaklaşım olarak uygulaması farklı olduğu için, ayırım yapılmaktadır*. (2) Gözlemsel çalışmalar, insani amaçlı ilaca erken erişim programları ve ilaç dışı standart tedavi uygulamaları bu Yönetmeliğin kapsamı dışındadır.

- ## 1998 Hasta Hakları (2003 Yönerge)

Burada daha önce tanımlamaların ulaşım açısından Web sitesi tanımlanmaktadır: *Yaklaşım olarak*. B Türkiye'de hasta hakları ile ilgili olarak 01 Ağustos 1998 tarih ve 23420 sayılı Resmî Gazete'de Hasta Hakları Yönetmeliği yayınlanmıştır.[2] Sağlık Bakanlığı Sağlık Hizmetleri Genel Müdürlüğü bu yönetmelikte geçen başvuru, şikayet hakkının kullanımını kolaylaştırmak için bir web sitesi hazırlamıştır. Hasta Başvuru Takip Sistemi (HBTS)'ne bağlı olan sitedir.[3] Bu siteden kişisel başvuruların takibi yapılabilir.

1998 Hasta Hakları (2003 Yönerge)
Burada *yaşama, maddi ve manevi varlığını koruma ve geliştirme hakkını haiz olduğu vurgusu yapılmaktadır*: *Yaklaşım olarak aksi uygulama suç ve ceza almak demektir*. *Herkesin yaşama, maddi ve manevi varlığını koruma ve geliştirme hakkını haiz olduğu ve hiçbir merci veya kimsenin bu hakkı ortadan kaldırmak yetkisinin olmadığı bilinerek, hastaya insanca muamelede bulunulur*

Hasta Hakları Yönetmeliği 98
Tıbbi Gereklilikler Dışında Müdahale Yasağı
Bir insana müdahale ancak tıbbi gerekçelere dayandırılmalıdır: *Yaklaşım olarak bireyin haklarını kullanmasını kısıtlayacak yaklaşımlar da kabul edilmemektedir*. **Madde 12- Teşhis, tedavi veya korunma maksadı olmaksızın**, ölüme veya hayati tehlikeye yol açabilecek veya vücut bütünlüğünü ihlal edebilecek veya akli veya bedeni mukavemeti azaltabilecek hiçbir şey yapılamaz ve talep de edilemez.

Yaşam hakkı, hayat hakkından herhangi bir gerekçe ile vaz geçilmesi kabul edilemez bir boyuttur: *Yaklaşım olarak yaşamın varlığına dönük olmalıdır*. **Ötenazi Yasağı: Madde 13- Ötenazi yasaktır**. Tıbbi gereklerden bahisle veya her ne suretle olursa olsun, **hayat**

hakkından vazgeçilemez. Kendisinin veya bir başkasının talebi olsa dahil, kimsenin hayatına son verilemez.

Teknolojik ve gelişimsel Tıp Bilimine göre yaklaşım yapılmalıdır: *Yaklaşım olarak modern ve teknolojik yapıda olmalıdır*. **Madde 11-** Hasta, modern tıbbi bilgi ve teknolojinin gereklerine uygun olarak teşhisinin konulmasını, tedavisinin yapılmasını ve bakımını istemek hakkına sahiptir.

Hasta tedaviyi hukuk usullerine uygun olarak reddedebilir ancak bu durumda oluşacak sorunlar ile vaz geçtiğinde başvurum hakkı olduğu da iletilmelidir: *Yaklaşım olarak bir arkadaşım kanser boyutu olarak 2 ayı kalmış ise, tedavi görmemek istemişti, ilk dozu al sonra karar ver ve ağrıların için tedavi göreceksin demiş, nitekim ilk dozda %50 üstü etkileşim olunca devam etti be bir yıldan fazla yaşadı, ailesi ile helalleşme imkânı oldu*. **Madde 25-** Kanunen zorunlu olan haller dışında ve doğabilecek olumsuz sonuçların sorumluluğu hastaya ait olmak üzere; hasta kendisine uygulanması planlanan veya uygulanmakta olan tedaviyi reddetmek veya durdurulmasını istemek hakkına sahiptir. Bu halde, tedavinin uygulanmamasından doğacak sonuçların hastaya veya kanuni temsilcilerine veyahut yakınlarına anlatılması ve bunu gösteren yazılı belge alınması gerekir.

- ## 1998 Nüfus Planlaması Hakkındaki Kanun; 2827

Amaç: Madde 1 – Bu Kanunun amacı, nüfus planlaması esaslarını, gebeliğin sona erdirilmesi ve sterilizasyon ameliyelerini, acil müdahale halleri ile gebeliği önleyici ilaç ve araçların temin, imal ve saptanmasına ilişkin hususları düzenlemektir.

Burada gebeliğin sonlanması değil, gebeliğin önlenmesi programı kastedilmektedir, ötenazi yasaktır: *Yaklaşım olarak tıbbi imkanlar kullanılarak yapılması öngörülmektedir*. **Nüfus planlaması: Madde 2** – Nüfus planlaması, fertlerin istedikleri sayıda ve istedikleri zaman çocuk sahibi olmaları demektir. Devlet, nüfus planlamasının öğretimi ile uygulanmasını sağlamak için gerekli tedbirleri alır. Nüfus planlaması gebeliği önleyici tedbirlerle sağlanır. Gebeliğin sona erdirilmesi ve sterilizasyon, Devletin gözetim ve denetimi altında yapılır. Bu Kanunun öngördüğü haller dışında gebelik sona erdirilemez ve sterilizasyon veya kastrasyon ameliyesi yapılamaz.

Nüfus Planlaması 98
GEBELİĞİN SONA ERDİRİLMESİ:
Burada embriyonik dönem sonuna kadar izin çıkmaktadır: *Yaklaşım olarak bebeğin maturasyona hemen, hemen aynı olduğu düşüncesi ile bebeğe göre değil, gebelik haftası temel alınmaktadır*. **Madde 5-** Gebeliğin onuncu haftası doluncaya kadar annenin sağlığı açısından tıbbi sakınca olmadığı takdirde istek üzerine rahim tahliye edilir.

Bu süreçten sonra ancak anne hayatı tehlikede ve ekte sunulan tıbbi gerekçelere göre sonlanma yapılabilecektir: *Yaklaşım olarak iyi izlem ve tanılarında veriye dayalı olması önemlidir*. Gebelik süresi, on haftadan fazla ise rahim ancak gebelik, annenin hayatını tehdit ettiği veya edeceği veya doğacak çocuk ile onu takip edecek nesiller için ağır maluliyete neden olacağı hallerde doğum ve kadın hastalıkları uzmanı ve ilgili daldan bir uzmanın objektif bulgulara dayanan gerekçeli raporları ile tahliye edilir.

Burada bildirme zorunluluğu ile, tıbbi destek ve sevk ona çıkmaktadır. Prematüreyi bakabilecek yerde ancak gebelik tahliyesi yapılabilir ki, bebek canlı olabilir: *Yaklaşım*

olarak Yoğun Bakım Ünitelerinin olduğu yer olması beklenir. **GEBELİĞİN SONA ERDİRİLMESİ:** Derhal müdahale edilmediği takdirde hayatı veya hayati organlardan birisini tehdit eden acil hallerde durumu tespit eden yetkili hekim tarafından gerekli müdahale yapılarak rahim tahliye edilir. Ancak, hekim bu müdahaleyi yapmadan önce veya mümkün olmadığı hallerde müdahaleden itibaren en geç yirmidört saat içinde müdahale yapılan kadının kimliği, yapılan müdahale ile müdahaleyi icap-ettiren gerekçeleri illerde sağlık ve sosyal yardım müdürlüklerine, ilçelerde hükümet tabipliklerine bildirmeye zorunludur.

Hasta Hakları Yönetmeliği 98

Tıbbi Gereklilikler Dışında Müdahale Yasağı
Burada yaşam hakkı temeldir: *Yaklaşım olarak mutlaka bilimsel veriye dayalı gerekçe olmalıdır*. **Madde 12- Teşhis, tedavi veya korunma maksadı olmaksızın**, ölüme veya hayati tehlikeye yol açabilecek veya vücut bütünlüğünü ihlal edebilecek veya akli veya bedeni mukavemeti azaltabilecek hiçbir şey yapılamaz ve talep de edilemez.

Ötenazi Yasağı
Yaşam Hakkı tartışmaya bile açılamaz: *Yaklaşım olarak bireyin yaşam hakkı önceliklidir*. **Madde 13-** Ötenazi yasaktır. Tıbbi gereklerden bahisle veya her ne suretle olursa olsun, **hayat hakkından vazgeçilemez.** Kendisinin veya bir başkasının talebi olsa dahil, kimsenin hayatına son verilemez.

Burada en üst teknolojik ve gelişimsel Tıbbi bilim uygulanmalıdır: *Yaklaşım olarak tıbbi modern yaklaşım yapılmalıdır*. **Madde 11-** Hasta, modern tıbbi bilgi ve teknolojinin gereklerine uygun olarak teşhisinin konulmasını, tedavisinin yapılmasını ve bakımını istemek hakkına sahiptir.

Burada da konu aynen işlenmektedir: *Yaklaşım olarak hasta reddetse bile her an için vaz geçecek gibi kabulü de ayarlanmalıdır*. **Madde 25-** Kanunen zorunlu olan haller dışında ve doğabilecek olumsuz sonuçların sorumluluğu hastaya ait olmak üzere; hasta kendisine uygulanması planlanan veya uygulanmakta olan tedaviyi reddetmek veya durdurulmasını istemek hakkına sahiptir. Bu halde, tedavinin uygulanmamasından doğacak sonuçların hastaya veya kanuni temsilcilerine veyahut yakınlarına anlatılması ve bunu gösteren yazılı belge alınması gerekir.

- **2003 Sözleşmeli Sağlık Personelinin Uymakla Yükümlü Olduğu Mesleki ve Etik Kurallar**

Burada Kamu Yararı öne çıkmaktadır. 2005 Türk Ceza Kanunda ise kişi hak ve özgürlükleri ilk planda yer almaktadır. Türk Ceza Kanunun diğer kanunlar içinde de bağlayıcı özelliği olduğu hukuk açısından dikkate alınmalıdır.

Ahlak bir toplumun kültürel oluşturduğu kurallar ve kalıplardır. Etik ise ahlak felsefesi olarak kalıp değil, bilimsel bir yapıda olmak, felsefe olarak bir yaklaşım boyutudur.

I-Genel kural ve esaslar:
Burada bir bakıma etik ilkeler belirtilmektedir: *Yaklaşım olarak: haklar/hukuk yapısında olarak, dürüstlük, doğruluk, hak edişe göre yaklaşım/adalet, hakkını etkin ve yerinde uygulanması ile hakkaniyet, sübjektif değil, veriye, kanıta dayalı olarak objektiflik, bilimsel*

boyut içinde olması ile güvenirlilik, bilim tarafında olmak ile veriye göre tarafsızlık, net bilgilendirme, aydınlatma ile rıza temini ile saydamlık, her yapılanın dayanak ve gerekçesi ile hesap verme sorumluluğu, etik bir innovasyon buluş boyutu ile karar ve işlemlerde etkinlik, verimlilik, yapılabilirlik, memnuniyet yaratması ile, sevgi ve insanlık boyutu ile göreve bağlılık ve yaklaşımlarda birey hakkı ve yararı yanında tümden de kamu yararına uygunluk olması beklenti içinde olmalıdır. **a)** Görevlerini, Türkiye Cumhuriyeti Anayasasına, kanunlara ve evrensel hukuk kurallarına bağlı olarak, dürüstlük, adalet, hakkaniyet, objektiflik, güvenirlilik, tarafsızlık, saydamlık, hesap verme sorumluluğu, karar ve işlemlerde etkinlik, göreve bağlılık ve kamu yararına uygunluk çerçevesinde yürütürler.

Burada eşitlik ilkesi vurgusu vardır: *Yaklaşım olarak kişi memnuniyeti vurgusu, kötü muamelede bulunmamak olarak geçmektedir*. **b)** Dil, din, inanç, düşünce, ırk, cinsiyet ve uyrukluk ayrımı yapamazlar; hiç kimseye fırsat eşitliğini engelleyici davranışlarda ve kötü muamelede bulunamazlar.

Yaklaşımlarda politik veçhile olmamalıdır: *Yaklaşım olarak etik ve insancıl yaklaşım derken, bunların belirli görüş altında olan politika, tarikat ve yöntem olarak dar anlamda olanı kabul edilmemelidir ki bunlar kalıba girmek anlamında olacaktır*. **c)** Herhangi bir siyasi partinin veya siyasi görüşün, kişinin, şirketin, teşebbüsün, odanın, birliğin, derneğin veya vakfın yararını veya zararını hedef alan davranışlarda bulunamazlar.

Bir işi yaparken, bazı kesim bundan faydalanabilir ama bu ona hizmet değil, görevi yapmaktır: *Yaklaşım olarak lehte ve aleyhte kullanılmasından sakınılmalıdır*. **d)** Doğrudan veya dolaylı olarak, bir seçim kampanyasında, birinin seçilmesini sağlamak veya engellemek amacıyla görev yaptığı kurumun kaynaklarını kullanamaz, kullanılmasına yetki veremezler.

Görev doğrudan maddi kazanç temelinde olamaz: *Yaklaşım olarak fayda ve gelirler, doğrudan birey, Devlet ve Kamu yararına olmalıdır*. **e)** Görev ve yetkilerini kendileri veya başkaları lehine doğrudan veya dolaylı olarak maddi veya sosyal yarar sağlamak amacıyla kullanamazlar ve bu amaçla aracılık yapamazlar.

Devlet, Kamu malı hizmet için her bireyindir ama bir bireye özgü, özel değildir: *Yaklaşım olarak elde edilenler Kamu yararınadır*. **f)** Kamu kaynaklarını ve kamu mallarını, görevleriyle ilgili olmayan faaliyetler için kullanamazlar.

Açıklama ancak bilgi vermek için olabilir: *Yaklaşım olarak yetki olmayınca bilgi bile sakıncalı olabilir, çünkü konu tam bilinmemektedir, ancak yapılanlar bilinebilir*. **g)** Yetkilerini aşarak çalıştıkları kurumları bağlayıcı açıklama, taahhüt, vaat veya girişimlerde bulunamazlar.

Bir sağlık yaklaşımına ekonomi adı altında ucuz ve kısıtlama yapılamaz: *Yaklaşım olarak etkin, verimli, kaliteli, uyulabilen ve memnuniyet yaratan olmalıdır*. **h)** Yetkilerini kullanırken, alınacak tedbirlerin elde edilmek istenilen amaç ile orantılı olmasını sağlamak ve sunulan hizmetin amacıyla uygun olmayacak şekilde, kısıtlama ve yükümlülük getirmekten kaçınmak zorundadırlar.

Bir bilgi ancak ilgili olana verilebilir: *Yaklaşım olarak bilgi vermek sorumluluk taşır, sorumlu olunmayınca verilemez*. **ı)** Ulusal güvenlik ve kamu yararı açısından gizlilik içeren bilgiler dışındaki bilgi ve belgeleri ilgili mevzuatın öngördüğü usuller ve yetkiler çerçevesinde, vatandaşların yazılı talepleri üzerine sağlamak ve iletilen bilgilerin açık ve anlaşılır olmasına özen göstermekle yükümlüdürler.

Bilgi verilmeyeceği gibi, bunlar menfaat üzere zaten kullanılamaz: *Yaklaşım olarak ben yaptım şeklinde de olsa menfaat amacı taşımamalıdır*. **i)** Görevleri dolayısıyla öğrendikleri resmi veya gizli nitelikteki bilgileri, doğrudan veya dolaylı olarak ekonomik, siyasal veya sosyal nitelikte bir menfaat elde etmek için kullanamazlar.

İletişim ve ilişkiler sevgi ve insanlık üzere olmalıdır: *Yaklaşım olarak yardımcı olmak amaç olmalıdır*. **j)** Hizmetten faydalananlara karşı saygılı ve nezaketli davranmakla, yazışmalara, telefonlara ve her nevi araçla yöneltilen taleplere cevap verirken hizmetten faydalananlara yardımcı olmakla ve konudan sorumlu değil ise ilgili görevliye yönlendirmekle yükümlüdürler.

Burada zamanımızda da Anayasa Mahkemesinin de kararlarında olduğu gibi, birey hakkı öncelikli ve temel alınmaktadır: *Yaklaşım olarak elbette başvuran, yanı ilgili kişi olması, başvurma bir bakıma rıza faktörünü de içerdiği dikkate alınmalıdır*. **k)** Kamu hizmetini talep edenlere yardımcı olmak, başkalarına zarar vermekten kaçınmak, dürüst, güvenilir ve adil olmak, özel hayata saygı duymak, insan onuruna ve vatandaş olmanın saygınlığına yaraşır şekilde hizmet vermek ve belirlenen hizmet sunum ilkelerine sadakatle uymakla yükümlüdürler.

II-Meslekî ve Etik Kurallar ile İlkeler:

Tüm etik ilkelere uyumu öngörülmektedir: *Yaklaşım olarak önce hukuk tanımı ile başlanması doğrudur, çünkü bazı etik bildirgeler (Groningen Protokolü gibi) yaşamın sonlanabileceği, ötenaziyi kabul etmektedir ama hukuk suç tanımlaması yapmaktadır*. B **a)** Anayasa başta olmak üzere, ulusal veya uluslararası tüm insan hakları belgelerinde ve sağlık hizmeti sunumu ile ilgili ortak kurallarda, Tıbbi Deontoloji Nizamnamesinde, Hasta Hakları Yönetmeliğinde ve diğer mevzuatta yer verilen mesleki ve etik kurallar ile ilkelere uymak ve hasta haklarına saygı göstermek zorundadırlar.

Temel hak olarak: bedeni, ruhi ve sosyal yönden tam bir iyilik hali içinde yaşama, maddi ve manevi varlığını koruma ve geliştirme hakkı sayılması önemlidir: *Yaklaşım olarak bu ilkelere uymak ve yapmak önemlidir*. **b)** Bedeni, ruhi ve sosyal yönden tam bir iyilik hali içinde yaşama, maddi ve manevi varlığını koruma ve geliştirme hakkının en temel insan hakkı olduğu, hiçbir merci veya kimsenin bu hakkı ortadan kaldırmak yetkisinin olmadığı hizmetin her safhasında daima göz-önünde bulundurulur.

Acil ve tıbbi gerekçe ile ancak bireyin bedenine dokunabilecektir: *Yaklaşım olarak gerekçe ve dayanak önemlidir*. **c)** Tıbbi zorunluluklar ve kanunlarda yazılı haller dışında, kişinin vücut bütünlüğüne ve diğer kişilik haklarına dokunulamaz.

Bilgi, bireyin hakkıdır, ancak bilimsel açıdan iletilebilir, kişilik hakkı tutulmalıdır: *Yaklaşım olarak her birey ve durum özel ve özgün olduğuna göre kişisel haklara saygı da gereklidir*. **d)** Sağlık hizmetinin verilmesi sebebiyle edinilen bilgiler, mevzuat ile müsaade edilen haller dışında, hiçbir şekilde açıklanamaz. Kişilerin özel ve aile hayatının gizliliğine dokunulamaz.

Bilimsel araştırma değil, gönüllü olması zorunluluk taşır, gönüllü olmalıdır: *Yaklaşım olarak belirli usul ve esaslara uyulmalıdır, deney sonucu etkisi bilinmeyen çalışma demektir, belirli aşama olmadan insanda tatbik edilemez*. **e)** Tıbbi araştırmalarda, mevzuat hükümlerinde belirlenen usûl dairesinde kişinin rızası alınır ve belirlenen diğer kurallara riayet edilir.

Bilimsel olmak her aşama hekimlerin, sağlık elemanının görevidir: *Yaklaşım olarak bilim dışı olanlar meslekten men cezası alabilirler*. **f)** Hastaların tanı ve tedavisinde bilimsel olmayan yöntemler uygulanamaz, gerekli bilimsel aşamalardan geçip ruhsatlandırılmamış kimyasal, farmakolojik, biyolojik maddeler ilaç olarak kullanılamaz.

Meslek hiçbir zaman ticari amaç için kullanılamaz: *Yaklaşım olarak menfaat boyu dışlanmalıdır*. **g)** Mesleğini uygularken reklam yapamaz, ticari reklamlara araç olamaz, çalışmalarına ticari bir görünüm veremez; insanları yanıltıcı, paniğe düşürücü, yanlış yönlendirici davranışlarda bulunamazlar.

Bir tıbbi yaklaşımda, başkaları ile de ticari amaç yapılamaz: *Yaklaşım olarak ticari amaç taşıması işlevin iptali demektir*. **h)** Sözleşmeli sağlık personeli, diğer sağlık personeline veya tetkik-tedavi kuruluşlarına maddi çıkar karşılığı hasta gönderemez. Hasta sağlamak amacıyla aracı kişilerden yararlanamaz.

Hekim, sağlık elemanları topluma bir rol model olarak, iletişim ve ilişkilerinde sevgi temelli insancıl boyutta olmalıdırlar: *Yaklaşım olarak insanlık simgeleri taşımalıdırlar*. **ı)** Kendi meslektaşları ve insan sağlığı ile uğraşan öteki meslek mensupları ile iyi ilişkiler kurar, meslektaşlarına veya sağlık ekibinin bir başka üyesine karşı küçük düşürücü davranışlarda bulunamaz.

Bir usul ve esaslar etik ilke dışına ise geçersizdir: *Yaklaşım olarak mutlak birey hakkı üzerinde olan etik ilkelerde olunmalıdır*. **i)** Sağlık personeli, hasta üzerindeki etkisini ve yetkilerini, hizmetin gereklerine, tıbbi etiğe ve amaçlara aykırı kullanamaz.

Bir yaklaşımda acil değilse, uzmanlık konusuna göre yaklaşım yapılmalıdır: *Yaklaşım olarak beceri uzmanlığa göre kazanıldığı için buna dikkat edilmelidir*. **j)** Görevlerini, haiz oldukları unvan ve meslekle ilgili mevzuat hükümlerine göre yürütürler ve bu mevzuat ile belirlenen görev ve yetkilerin dışına çıkamazlar.

Burada daha sonra tanımlanacak ilkelere de uyumu öngörmektedir: *Yaklaşım olarak devamlı bilimsel izlemi öngörmektedir*. **k)** Bu kurallar da yer alan tanzimlere ve genel etik ilkelere, ulusal ve uluslararası normlara uymakla yükümlüdürler.

• 2005 TCK (2004 CMK)

2005 Tarihli TCK en modern boyutları ile bir örnek yasadır.

Burada Yasanın amacı başta kişi hak ve özgürlüklerini korumak ve suç işlenmesini önlemek olarak tanımlamaktadır: *Yaklaşım olarak tüm hukuk yapısı, Anayasa Mahkemesi dahil, birey hakkı üzerinde karar vermektedirler*. **Ceza Kanununun amacı: Madde 1-** (1) Ceza Kanununun amacı; kişi hak ve özgürlüklerini, kamu düzen ve güvenliğini, hukuk devletini, kamu sağlığını ve çevreyi, toplum barışını korumak, suç işlenmesini önlemektir. Kanunda, bu amacın gerçekleştirilmesi için ceza sorumluluğunun temel esasları ile suçlar, ceza ve güvenlik tedbirlerinin türleri düzenlenmiştir.

Bir suç kanunda belirtilen ve kanıta dayalı, somut olmalıdır: *Yaklaşım olarak suç belirgin ve tartışmaya mahal olamaz*. **Suçta ve cezada kanunilik ilkesi: Madde 2-** (1) Kanunun açıkça suç saymadığı bir fiil için kimseye ceza verilemez ve güvenlik tedbiri uygulanamaz. Kanunda

yazılı cezalardan ve güvenlik tedbirlerinden başka bir ceza ve güvenlik tedbirine hükmolunamaz.
(2) İdarenin düzenleyici işlemleriyle suç ve ceza konulamaz.
(3) Kanunların suç ve ceza içeren hükümlerinin uygulanmasında kıyas yapılamaz. Suç ve ceza içeren hükümler, kıyasa yol açacak biçimde geniş yorumlanamaz.

Ceza yapılan fiile göre, eşitlik ilkesine göre taktir edilir: *Yaklaşım olarak mutlaka ispat edilen, zararı tespit edilen olmalıdır*. **Adalet ve kanun önünde eşitlik ilkesi**
Madde 3- (1) Suç işleyen kişi hakkında işlenen fiilin ağırlığıyla orantılı ceza ve güvenlik tedbirine hükmolunur.
(2) Ceza Kanununun uygulamasında kişiler arasında ırk, dil, din, mezhep, milliyet, renk, cinsiyet, siyasal veya diğer fikir yahut düşünceleri, felsefi inanç, milli veya sosyal köken, doğum, ekonomik ve diğer toplumsal konumları yönünden ayrım yapılamaz ve hiçbir kimseye ayrıcalık tanınamaz.

TCK bağlayıcıdır ve bilmemek mazeret olamaz: *Yaklaşım olarak diğer yaklaşımlarda öncelikle tanımlanan ve ispat edilen suç unsuruna göre yapılandırılmalıdır*. **Kanunun bağlayıcılığı**
Madde 4- (1) Ceza kanunlarını bilmemek mazeret sayılmaz.

Suç tanımı diğer özel kanunlarda da geçerliliğini korumaktadır: *Yaklaşım olarak suç ise bu yasal düzen içinde ceza verilir*. **Özel kanunlarla ilişki**
Madde 5- (1) Bu Kanunun genel hükümleri, özel ceza kanunları ve ceza içeren kanunlardaki suçlar hakkında da uygulanır.

TCK (Haklara vurgu yapan maddeler)

- a) İdarenin düzenleyici işlemleriyle suç ve ceza konulamaz,
- b) Hakkını kullanan kimseye ceza verilmez,
- c) Konusu suç teşkil eden emir hiçbir surette yerine getirilmez. …yerine getiren ile emri veren sorumlu olur (Anayasa 137Md),
- c) Kişinin üzerinde mutlak surette tasarruf edebileceği bir hakkına ilişkin olmak üzere, açıklandığı rızası çerçevesinde işlenen fiillerden dolayı kimseye ceza verilmez,
- d) Ceza kanununun uygulanmasında kişiler arasında… Ayrım yapılmaz ve hiçbir kimseye ayrıcalık tanınamaz,
- e) Kanunların suç ve ceza içeren hükümlerinin uygulanmasında kıyas yapılamaz. Suç ve ceza içeren hükümler, kıyasa yol açacak biçimde geniş yorumlanamaz

TCK göre çocuğun 10 haftadan önce düşürülmesi suçtur: *Yaklaşım olarak bu işlemi yapan ceza alır*. **2005 TCK: (2004 CMK):** Tıbbi zorunluluk bulunmadığı halde, rızaya dayalı olsa bile, gebelik süresi on haftadan fazla olan bir kadının çocuğunu düşürten kişi

Bir durumda ırza geçme gibi kadının mağdur olması ile, süre 20 haftaya çıkarılacağı belirtilmektedir. 20 Haftan sonra yaşam sınırına girmektedir: *Yaklaşım olarak kadının hakları gözetilmesi esas alınmaktadır*. Kadının mağduru olduğu bir suç sonucu gebe kalması halinde, süresi yirmi haftadan fazla olmamak ve kadının rızası olmak koşuluyla, gebeliği sona erdirene ceza verilmez

- ## 2005 Çocuk Hakları Kanunu

5395 Sayılı ve 15/7/2005 tarihli ÇOCUK KORUMA KANUNU
Çocuklara koruyucu ve destekleyici hizmet verilmelidir: *Yaklaşım olarak çocuğun kendi ailesi dahil korunması gerekirse uygulanmalıdır*. ***Koruyucu ve destekleyici tedbirler:*** **Madde 5-** (1) Koruyucu ve destekleyici tedbirler, çocuğun öncelikle kendi aile ortamında korunmasını sağlamaya yönelik danışmanlık, eğitim, bakım, sağlık ve barınma konularında alınacak tedbirlerdir.

Burada korunma ve tedavi boyutu geçici veya sürekli olabilmektedir: *Yaklaşım olarak bireye, çocuğa göre yapılmalıdır*. Bunlardan; **d)** Sağlık tedbiri, çocuğun fiziksel ve ruhsal sağlığının korunması ve tedavisi için gerekli geçici veya sürekli tıbbî bakım ve rehabilitasyonuna, bağımlılık yapan maddeleri kullananların tedavilerinin yapılmasına,

Çocukların güvenlik tedbirleri içinde kanun çıkarılması öngörülmektedir: *Yaklaşım olarak her işte olduğu gibi Kanunilik esastır*. ***Çocuklara özgü güvenlik tedbirleri:*** **Madde 56-** (1) Çocuklara özgü güvenlik tedbirlerinin neler olduğu ve ne suretle uygulanacakları ilgili kanunda gösterilir.

- ## 2009 Engelli Hakları Kanunu

2006 BM Özürlü Hakları
Burada Kanun danışmanlık ve savunuculuğunu yapmayı görev olarak sunmaktadır: *Yaklaşım olarak bir sorun veya dışlanma, itilme olursa, derhal Devlet olarak konuya girilmektedir*. B Başta çocuklar ve özürlüler olmak üzere tüm hastaların danışmanlığını ve savunuculuğunu yapmak

- ## 2011 Klinik Araştırmalar Yönetmeliği (Etik)

KLİNİK ARAŞTIRMALAR HAKKINDA YÖNETMELİK
BİRİNCİ BÖLÜM
Amaç
Burada yasa evrensel boyuta uygunluk getirdiğini iade etmektedir: *Yaklaşım olarak modern etik ilkeler geçerlidir denilmektedir. Yasa vurgu yaparsa hukuk tanımlar, çünkü Kanunilik ilkesi gereğinde hukuk kanuna bakar*. **MADDE 1 –** (1) Bu Yönetmeliğin amacı; taraf olunan uluslararası anlaşma ve sözleşmeler ile Avrupa Birliği standartları ve iyi klinik uygulamaları çerçevesinde, gönüllü insanlar üzerinde gerçekleştirilecek klinik araştırmaların tasarımı, yürütülmesi, kayıtlarının tutulması, rapor edilmesi, geçerliliği ve diğer hususlarda bilimsel ve etik standartların sağlanması ve gönüllülerin haklarının korunmasına dair usul ve esasları düzenlemektir.

Bu kanun geniş anlama bu konuda, gönüllü çalışmalarının tümünü kapsamaktadır: *Yaklaşım olarak her türlü çalışma konumuz içindedir denilerek, tek ve tek sayılmıştır*. **Kapsam: MADDE 2 –** (1) Bu Yönetmelik, ruhsat veya izin alınmış olsa dahi insanlar üzerinde, ilaç ve terkipleriyle yapılacak ilaç klinik araştırmalarını, gözlemsel ilaç çalışmalarını, gözlemsel tıbbi cihaz çalışmalarını; tıbbi cihazlar, ileri tedavi tıbbi ürünleri, geleneksel bitkisel tıbbi ürünler, kozmetik hammadde veya ürünleri dahil insanlarda denenmesi söz konusu olabilecek diğer tüm madde ve ürünlerle yapılacak klinik araştırmaları; biyoyararlanım ve

biyoeşdeğerlik (BY/BE) çalışmalarını, biyo-benzer ürünler için kıyaslanabilirlik çalışmalarını, endüstriyel ileri tıbbi ürünlerle ve endüstriyel olmayan ileri tıbbi ürünlerle yapılacak araştırmaları; insanlar üzerinde yapılacak kök hücre nakli araştırmalarını, organ ve doku nakli araştırmalarını, cerrahi araştırmaları, gen tedavisi araştırmalarını; ayrıca, klinik araştırma yerlerini ve bu araştırmaları gerçekleştirecek gerçek veya tüzel kişileri kapsar.

Burada gözlemsel olanlar dışlanmaktadır: *Yaklaşım olarak bir yaklaşımda gözleme dayalı, biyolojik yaratılışı izlem konusu içine alınmamaktadır*. (2) Gözlemsel ilaç çalışmaları ve gözlemsel tıbbi cihaz çalışmaları hariç, girişimsel olmayan tüm klinik araştırmalar bu Yönetmeliğin kapsamı dışındadır.

- **2011 Türk Ticaret Kanunu**

Daha önce butlan, batıl ve kabul edilemeyenler sayılırken, son kanunda ise, tüm ticari hükümler yasaklı ise batıldır, değilse yapılabilir: *Yaklaşım olarak yasak tanımlanan, kanunda belirtilenlerdir, diğerleri serbesttir ama zarar ve zulüm olmamalıdır*. **2011 Türk Ticaret Kanunu Madde 1530:** *Aksine bir hüküm bulunmadığı takdirde, ticari hükümlerle yasaklanmış işlemler ve şartlar batıldır*

- **2014 Hasta Hakları Yönetmeliğinde Değişiklik Yapılmasına Dair**

Yönetmelik (8 Mayıs 2014 tarih ve 28994 sayılı Resmî Gazete)
Sağlık Bakanlığından: HASTA HAKLARI YÖNETMELİĞİNDE DEĞİŞİKLİK YAPILMASINA DAİR YÖNETMELİK
Burada yeni düzenleme olduğu ifade edilmektedir: *Yaklaşım olarak her sefer yeni kanunla değişim olması beklenir*. **MADDE 1** – 1/8/1998 tarihli ve 23420 sayılı Resmî Gazete'de yayımlanan Hasta Hakları Yönetmeliğinin 3'üncü maddesi aşağıdaki şekilde değiştirilmiştir. "Madde 3 – Bu Yönetmelik; 15/5/1987 tarihli ve 3359 Sayılı Sağlık Hizmetleri Temel Kanununa ve 11/10/2011 tarihli ve 663 Sayılı Sağlık Bakanlığı ve Bağlı Kuruluşlarının Teşkilat ve Görevleri Hakkında Kanun Hükmünde Kararnamenin 8'nci ve 40'ncı maddelerine dayanılarak hazırlanmıştır."

MADDE 2 – Aynı Yönetmeliğin 4'üncü maddesinin birinci fıkrasının (d) bendi aşağıdaki şekilde değiştirilmiş ve aynı maddeye aşağıdaki bentler eklenmiştir. "
Burada özel kuruluşlarda içine katılmaktadır: *Yaklaşım olarak tek elde toplanılmaktadır*. **d)** Sağlık kurum ve kuruluşu: Sağlık hizmeti verilen kamu veya özel bütün kurum ve kuruluşları ile tababet icra edilen bütün yerleri," "

Rıza verme boyutu detaylandırılmaktadır: *Yaklaşım olarak rıza önemlidir, hukuki dayanağı olan vermelidir*. **f) Yeterlik**: Yaşının küçüklüğü yüzünden veya akıl hastalığı, akıl zayıflığı, sarhoşluk ya da bunlara benzer sebeplerden biriyle akla uygun biçimde davranma yeteneğinden yoksun olmayan onay verenin önerilen tıbbi müdahalede karşılaşabileceği ya da reddettiğinde doğabilecek sonuçları makul bir şekilde anlama ve değerlendirme yeteneğine sahip olma halini,

Burada yaklaşım ancak tıbbi yetenek ve yetkin kişilerce verilmelidir: *Yaklaşım olarak yetkin ve etkin kişi olunmalıdır*. **g)** Tıbbi müdahale: Tıp mesleğini icraya yetkili kişiler tarafından uygulanan, sağlığı koruma, hastalıkların teşhis ve tedavisi için ilgili meslekî

yükümlülükler ve standartlara uygun olarak tıbbın sınırları içinde gerçekleştirilen fizikî ve ruhî girişimi,

Rıza alınması için bilgilendirme yapılması gereklidir: *Yaklaşım olarak rıza ancak aydınlatmadan sonra alınabilir*. **ğ) Bilgilendirme**: Yapılması planlanan her türlü tıbbi müdahale öncesinde müdahaleyi gerçekleştirecek sağlık meslek mensubu tarafından kişiye gerekli bilginin verilmesini,

Burada önce bilgilendirme sonra rıza parametresi konulmuş: *Yaklaşım olarak rıza daha sonraki bir işlemdir*. **h) Rıza**: Kişinin tıbbi müdahaleyi serbest iradesiyle ve bilgilendirilmiş olarak kabul etmesini,"

MADDE 3 – Aynı Yönetmeliğin 15 inci maddesi başlığı ile birlikte aşağıdaki şekilde değiştirilmiştir. "
Burada bilgilendirme boyutu sunulmaktadır: *Yaklaşım olarak bu konu aşağıda daha geniş işlenmektedir*. **Bilgilendirmenin Kapsamı Madde 15** – Hastaya; a) Hastalığın muhtemel sebepleri ve nasıl seyredeceği, b) Tıbbi müdahalenin kim tarafından nerede, ne şekilde ve nasıl yapılacağı ile tahmini süresi, c) Diğer tanı ve tedavi seçenekleri ve bu seçeneklerin getireceği fayda ve riskler ile hastanın sağlığı üzerindeki muhtemel etkileri, ç) Muhtemel komplikasyonları, d) Reddetme durumunda ortaya çıkabilecek muhtemel fayda ve riskleri, e) Kullanılacak ilaçların önemli özellikleri, f) Sağlığı için kritik olan yaşam tarzı önerileri, g) Gerektiğinde aynı konuda tıbbî yardıma nasıl ulaşabileceği, hususlarında bilgi verilir."

Burada bilgilendirme usulünü de belirtmektedir: *Yaklaşım olarak sert ve kabul edilemez değil, uygulama usulü insancıl olmalı ve burada da geniş verilmektedir*. 8 Mayıs 2014 – Sayı: 28994 RESMÎ GAZETE Sayfa: 19 MADDE 4 – Aynı Yönetmeliğin 18 inci maddesi aşağıdaki şekilde değiştirilmiştir. "**Madde 18** – Bilgi, mümkün olduğunca sade şekilde, tereddüt ve şüpheye yer verilmeden, hastanın sosyal ve kültürel düzeyine uygun olarak anlayabileceği şekilde verilir. Hasta, tıbbi müdahaleyi gerçekleştirecek sağlık meslek mensubu tarafından tıbbi müdahale konusunda sözlü olarak bilgilendirilir. Bilgilendirme ve tıbbi müdahaleyi yapacak sağlık meslek mensubunun farklı olmasını zorunlu kılan durumlarda, bu duruma ilişkin hastaya açıklama yapılmak suretiyle bilgilendirme yeterliliğine sahip başka bir sağlık meslek mensubu tarafından bilgilendirme yapılabilir. Hastanın kendisinin bilgilendirilmesi esastır. Hastanın kendisi yerine bir başkasının bilgilendirilmesini talep etmesi halinde, bu talep kişinin imzası ile yazılı olarak kayıt altına alınmak kaydıyla sadece bilgilendirilmesi istenilen kişilere bilgi verilir. Hasta, aynı şikâyeti ile ilgili olarak bir başka hekimden de sağlık durumu hakkında ikinci bir görüş almayı talep edebilir. Acil durumlar dışında, bilgilendirme hastaya makul süre tanınarak yapılır. Bilgilendirme uygun ortamda ve hastanın mahremiyeti korunarak yapılır. Hastanın talebi halinde yapılacak işlemin bedeline ilişkin bilgiler sağlık hizmet sunucusunun ilgili birimleri tarafından verilir."

Başkasına bilgi vermek veya vermemek de kişinin hakkıdır: *Yaklaşım olarak uygulamada karar kişiye aittir*. MADDE 5 – Aynı Yönetmeliğin 20'nci maddesi aşağıdaki şekilde değiştirilmiştir. "**Madde 20** – İlgili mevzuat hükümleri ve/veya yetkili mercilerce alınacak tedbirlerin gerektirdiği haller dışında; kişi, sağlık durumu hakkında kendisinin, yakınlarının ya da hiç kimsenin bilgilendirilmemesini talep edebilir. Bu durumda kişinin kararı yazılı olarak alınır. Hasta, bilgi verilmemesi talebini istediği zaman değiştirebilir ve bilgi verilmesini talep edebilir."

Rıza verme durumunun irdelenmesi yapılmaktadır: *Yaklaşım olarak mahkemelerde oluşan rıza boyutu burada da vurgulanmaktadır*. MADDE 6 – Aynı Yönetmeliğin 24'üncü maddesi aşağıdaki şekilde değiştirilmiştir. "**Madde 24** – Tıbbi müdahalelerde hastanın rızası gerekir. Hasta küçük veya mahcur ise velisinden veya vasisinden izin alınır. Hastanın, velisinin veya vasisinin olmadığı veya hazır bulunamadığı veya hastanın ifade gücünün olmadığı hallerde, bu şart aranmaz. Kanuni temsilcinin rızasının yeterli olduğu hallerde dahi, anlatılanları anlayabilecekleri ölçüde, küçük veya kısıtlı olan hastanın dinlenmesi suretiyle mümkün olduğu kadar bilgilendirme sürecine ve tedavisi ile ilgili alınacak kararlara katılımı sağlanır. Sağlık kurum ve kuruluşları tarafından engellilerin durumuna uygun bilgilendirme yapılmasına ve rıza alınmasına yönelik gerekli tedbirler alınır. Kanuni temsilci tarafından rıza verilmeyen hallerde, müdahalede bulunmak tıbben gerekli ise, velayet ve vesayet altındaki hastaya tıbbi müdahalede bulunulabilmesi; Türk Medeni Kanunu'nun 346'ncı ve 487 inci maddeleri uyarınca mahkeme kararına bağlıdır. Tıbbi müdahale sırasında isteğini açıklayabilecek durumda bulunmayan bir hastanın, tıbbî müdahale ile ilgili olarak önceden açıklamış olduğu istekleri göz önüne alınır. Yeterliğin zaman zaman kaybedildiği tekrarlayıcı hastalıklarda, hastadan yeterliği olduğu dönemde onu kaybettiği dönemlere ilişkin yapılacak tıbbi müdahale için rıza vermesi istenebilir. Hastanın rızasının alınamadığı hayati tehlikesinin bulunduğu ve bilincinin kapalı olduğu acil durumlar ile hastanın bir organının kaybına veya fonksiyonunu ifa edemez hale gelmesine yol açacak durumun varlığı halinde, hastaya tıbbi müdahalede bulunmak rızaya bağlı değildir.

Her aşama da kayıt gerektiği, taburcu olurken de epikriz, hasta çıkış özetinin olması vurgusu yapılmaktadır: *Yaklaşım olarak yapılanlar ve hekim notlarının özeti verilmesi belirtilmektedir*. **Sayfa: 20** RESMÎ GAZETE 8 Mayıs 2014 – Sayı: 28994: Bu durumda hastaya gerekli tıbbi müdahale yapılarak durum kayıt altına alınır. Ancak bu durumda, mümkünse hastanın orada bulunan yakını veya kanuni temsilcisi; mümkün olmadığı takdirde de tıbbi müdahale sonrasında hastanın yakını veya kanuni temsilcisi bilgilendirilir. Ancak hastanın bilinci açıldıktan sonraki tıbbi müdahaleler için hastanın yeterliği ve ifade edebilme gücüne bağlı olarak rıza işlemlerine başvurulur. Sağlık kurum ve kuruluşlarında yatarak tedavisi tamamlanan hastaya, genel sağlık durumu, ilaçları, kontrol tarihleri diyet ve sonrasında neler yapması gerektiği gibi bilgileri içeren taburcu sonrası tedavi planı sağlık meslek mensubu tarafından sözel olarak anlatılır. Daha sonra bu tedavi planının yer aldığı epikrizin bir nüshası hastaya verilir."

Rıza formunun hazırlanması hakkındaki usuller belirtilmektedir: *Yaklaşım olarak yapılacaklar sunulmaktadır*. MADDE 7 – Aynı Yönetmeliğin 26'ncı maddesi başlığıyla birlikte aşağıdaki şekilde değiştirilmiştir. "Rıza Formu **Madde 26** – Mevzuatta öngörülen durumlar ile uyuşmazlığa mahal vermesi tıbben muhtemel görülen tıbbi müdahaleler için sağlık kurum ve kuruluşunca 15 inci maddedeki bilgileri içeren rıza formu hazırlanır. Rıza formunda yer alan bilgiler; sözlü olarak hastaya aktarılarak rıza formu hastaya veya kanuni temsilcisine imzalatılır. Rıza formu iki nüsha olarak imza altına alınır ve bir nüshası hastanın dosyasına konulur, diğeri ise hastaya veya kanuni temsilcisine verilir. Acil durumlarda tıbbi müdahalenin hasta tarafından kabul edilmemesi durumunda, bu beyan imzalı olarak alınır, imzadan imtina etmesi halinde durum tutanak altına alınır. Rıza formu bilgilendirmeyi yapan ve tıbbi müdahaleyi gerçekleştirecek sağlık meslek mensubu tarafından imzalanır. Verilen bilgilerin doğruluğundan ilgili sağlık meslek mensubu sorumludur. Rıza formları arşiv mevzuatına uygun olarak muhafaza edilir."

Yaklaşımlar verilen rıza sınırları içinde olmalıdır: *Yaklaşım olarak rıza neye alınmış ise o yapılmalıdır*. MADDE 8 – Aynı Yönetmeliğin 31 inci maddesi başlığıyla birlikte aşağıdaki şekilde değiştirilmiştir. "Rızanın Kapsamı ve Aranmayacağı Haller **Madde 31** – Rıza alınırken hastanın veya kanuni temsilcisinin tıbbi müdahalenin konusu ve sonuçları hakkında bilgilendirilip aydınlatılması esastır. Hastanın verdiği rıza, tıbbi müdahalenin gerektirdiği sürecin devamı olan ve zorunlu sayılabilecek rutin işlemleri de kapsar. Tıbbi müdahale, hasta tarafından verilen rızanın sınırları içerisinde olması gerekir. Hastaya tıbbi müdahalede bulunulurken yapılan işlemin genişletilmesi gereği doğduğunda müdahale genişletilmediği takdirde hastanın bir organının kaybına veya fonksiyonunu ifa edemez hale gelmesine yol açabilecek tıbbi zaruret hâlinde rıza aranmaksızın tıbbi müdahale genişletilebilir."

Burada hastanın uyması gerekenler belirtilmektedir: *Yaklaşım olarak o işletmenin sistematiğine uyum öngörülmektedir*. MADDE 9 – Aynı Yönetmeliğe 42'nci maddesinden sonra gelmek üzere aşağıdaki maddeler eklenmiştir. "Hastanın Uyması Gereken Kurallar **Madde 42/A** – Hasta sağlık hizmeti alırken aşağıdaki kurallara uyar: a) Başvurduğu sağlık kurum ve kuruluşunun kural ve uygulamalarına uygun davranır ve katılımcı bir yaklaşımla teşhis ve tedavi ekibinin bir parçası olduğu bilinciyle hareket eder. b) Yakınmalarını, daha önce geçirdiği hastalıkları, gördüğü tedavileri ve tıbbi müdahaleleri, eğer varsa halen kullandığı ilaçları ve sağlığıyla ilgili bilgileri mümkün olduğunca eksiksiz ve doğru olarak verir.

Hastaların izlem ve kontrole gelmesi gibi hastaların takibinde dikkat edilecekler belirtilmektedir: *Yaklaşım olarak uygulama sonrasını da ifade edilmektedir*. 8 Mayıs 2014 – Sayı: 28994 RESMÎ GAZETE **Sayfa: 21** c) Hekim tarafından belirlenen sürelerde kontrole gelmeli ve tedavisinin gidişatı hakkında geri bildirimlerde bulunur. ç) Randevu tarih ve saatine uyar ve değişiklikleri ilgili yere bildirir. d) İlgili mevzuata göre öncelik tanınan hastalar ile diğer hastaların ve personelin haklarına saygı gösterir. e) Personele sözlü ve fiziki saldırıya yönelik davranışlarda bulunmaz. f) Haklarının ihlal edildiğini düşündüğünde veya sorun yaşadığında hasta iletişim birimine başvurur." "

Hasta Hakları Birimi kurulması üzerine kanun maddesi: *Yaklaşım olarak hasta hakları hasta hakları birimlerince yürütülecek, doğrudan hasta tarafında olacakları anlaşılmalıdır*. **Hasta İletişim Birimleri, Hasta Hakları Kurulları, Sertifikalı Eğitim Madde 42/B** – Hasta hakları uygulamalarının yürütülmesi amacıyla sağlık kurum ve kuruluşları bünyesinde hasta iletişim birimleri oluşturulur. İl sağlık müdürlüğü; üniversite hastaneleri, askeri hastaneler ve özel sağlık kurum ve kuruluşları, kamu hastaneleri, ağız diş sağlığı merkezleri, aile sağlığı merkezleri ve toplum sağlığı merkezlerinden gelen başvuruları değerlendirmek, karara bağlamak, öneri sunmak ve düzeltici işlemleri belirlemek üzere Hasta Hakları Kurulu oluşturur. Kurul, başkan dahil aşağıdaki üyelerden oluşur. İl sağlık müdürü veya müdürlük temsilcisi Kurulun başkanıdır. Diğer üyeler şunlardır: şikayet edilen personelin varsa bir işyeri sendika temsilcisi, şikayet edilen personelin görev yaptığı kurumun ildeki üst yöneticisi tarafından görevlendirilen bir kurum temsilcisi (üniversite rektörlüğü, Halk Sağlığı Müdürlüğü, Kamu Hastaneleri Birliği Genel Sekreterliği), özel sağlık kuruluşlarında ise kuruluşun üst yöneticisi tarafından belirlenen bir temsilci, hasta hakları derneklerinden yoksa tüketici derneklerinden bir temsilci, valilikçe görevlendirilen bir vatandaş. Birden fazla hasta hakları derneğinin veya tüketici derneğinin başvurması durumunda, dernek temsilcisi il sağlık müdürlüğünce kura yoluyla belirlenir. İl sağlık müdürlüğü ihtiyaç halinde birden fazla kurul oluşturabilir. Bu Yönetmelik kapsamında yapılacak sertifikalı eğitimler

Burada Hasta Hakları Kurulu çalışma prensibi belirtilmektir: *Yaklaşım olarak bu usullere uyulmalıdır*. 4/2/2014 tarihli ve 28903 sayılı Resmî Gazete'de yayımlanan Sağlık Bakanlığı Sertifikalı Eğitim Yönetmeliği hükümlerine tabidir. "Kurulun Görevleri, Çalışma Usul ve Esasları **Madde 42/C** – Kurulun görevleri ile çalışma usul ve esasları şunlardır; a) Kurul, sağlık kurum ve kuruluşu tarafından yerinde çözülemeyen yazılı ve/veya elektronik başvuruları değerlendirir. b) Hasta hakları uygulamalarına veya etik ilkelere aykırı davranış sebebiyle kurul tarafından verilen ihlal kararları, ilgili sağlık kurum ve kuruluşuna ve ilgili personele yazılı olarak tebliğ edilir. Son altı ay içerisinde ikiden fazla hak ihlali kararı verilen sağlık meslek mensubu hakkındaki dosya 663 sayılı Sağlık Bakanlığı ve Bağlı Kuruluşlarının Teşkilat ve Görevleri Hakkında Kanunun 23'üncü maddesinin yedinci fıkrasının (b) bendi hükmüne göre Sağlık Meslekleri Kuruluna gönderilir.

Sayfa: 22 RESMÎ GAZETE 8 Mayıs 2014 – Sayı: 28994 c) Kurul, gerek görürse hasta hakları ihlaline sebep olabilecek uygulamaları inceler ve hasta haklarının geliştirilmesi için öneri ve düzeltici işlem belirlenmesine karar verir. Sağlık kurum ve kuruluşu belirlenen süre içinde gerekli önlemleri alır, girişimlerde bulunur ve yapılan işlem hakkında kurulu bilgilendirir. ç) Kurul en geç on beş günde bir toplanır. Sekretarya hizmetleri il sağlık müdürlüğü hasta hakları koordinatörlüğünce yürütülür. d) Kurul, başvurunun kurula ulaştığı tarihten itibaren otuz gün içerisinde başvuru hakkında karar verir. e) Kurul, üye tam sayısının salt çoğunluğu ile toplanır ve toplantıya katılan üyelerin salt çoğunluğu ile karar alır. Karara itirazı olan üyelerin karşı oy gerekçeleri, kararın altına özet olarak yazılır. f) Kararlar, üyeler tarafından imzalanarak dosyalanır. Kararlar ilgili sağlık kurum ve kuruluşu ile başvurana bildirilir. g) Hasta iletişim birimine yapılan başvurular ve kurulda görüşülen dosyalar gizlidir, hiçbir şekilde üçüncü kişilere bilgi verilemez. Bilgi ve dosyalar resmi olarak talep edilmesi kaydıyla idari soruşturma yapan incelemeciye ya da adli mercilere gizliliğe riayet edilerek verilir. Kurul üyeleri gizliliğe riayet etmekle yükümlüdür. ğ) Kurul gerek gördüğünde ilgilileri kurula davet edebilir. h) Sivil toplum temsilcisi ve sendika temsilcisi olan üyelerin görev süresi takvim yılıdır. Komisyon üyelerinin görev süresi iki yıldır. Süresi dolan üyeler tekrar görevlendirilebilir. Kurul toplantılarına mazeretsiz olarak üst üste üç defa katılmayan üyenin üyeliği sona erer ve bu kişiler üç yıl süreyle yeniden üye olarak seçilemez. Herhangi bir sebeple boşalan üyelik için kalan süreyi tamamlamak üzere yeni üye seçilir. ı) Tıbbi hata iddialarına ilişkin başvurular kurul tarafından değerlendirilmez. İl sağlık müdürlüğünce bu Yönetmelik uygulamalarına aykırı davranışı tespit edilen kurul üyelerinin üyeliğine son verilir ve bunlar beş yıl süreyle yeniden üye olarak seçilemez. Hasta hakları kurulu kararlarının özeti, şikâyet edilen kişi isimlerine yer verilmeksizin il sağlık müdürlüğünün internet sayfasında duyurulur.

- **2014/32 Hasta Hakları Uygulamaları Genelgesi**

Bu Genelge çıktıktan sonra bir aile bizi şikâyet etti. Kan kültüründe mikrop üreyen yenidoğan bebeğin hemen taburcu edilmesi için, rıza verdiği, bunun geçersiz kabul edilmesi üzerine başvurmuştur. Bebeğin bilinç kaybı hikayesi de olduğu için, menenjite gidiş olabileceği, anne öğretmen olmasına karşın, baba jandarma olarak zorlama ile yapacağı düşüncesinde idi. Yaşam Hakkı ötesinde, zorlama ile yaparsa Çocuk Koruma Kanununa göre bebeğin Devlet Bakımına alınacağı örneği de söylenince, bu yola başvurmuştur. İlk planda aile rızası ile taburcu edileceği görüşü olsa da 3-4 gün tam tedavi ile, Rooming in yaparak olması boyutu kabul edilmemiştir. İlk planda açıklamadan sonra, tam görüşümüz benimsenmiştir. Zorlama yapılırsa, zorla bebeği

çıkarmaları durumunda da meslekten men cezası olabileceği de belirtilince, tam tedavi sonrası bebek taburcu edilmiştir.

GENELGE 2014/32 (0006121732)
Burada tüm sağlık kuruluşlarında olması önerilmektedir: *Yaklaşım olarak kurullar etkin çalışmaktadırlar*. • Hasta Hakları Yönetmeliği ile birinci basamak kamu sağlık tesisleri, özel sağlık tesisleri ve askeri hastaneler dahil olmak üzere bütün sağlık kurum ve kuruluşlarında hasta memnuniyetinin arttırılması, insan haysiyetine yakışır şekilde herkesin hasta haklarından faydalanabilmesi, hak ihlallerinden korunabilmesi ve gerektiğinde hukuki korunma yollarını fiilen kullanılabilmesini teminen hasta sorumlulukları da belirlenerek hasta/çalışan memnuniyeti ve güvenliğini gözeten bir yaklaşımla düzenleme yapılmıştır.

Ayrıca, yönetmelikle uyumlu olarak, internet tabanlı Hasta Başvuru Bildirim Sistemi (HBBS) oluşturulmuştur. Bu sistemle, başvuruların internet üzerinden alınması ve hasta iletişim biriminden hasta hakları kurul kararlarının sonuçlarının bildirilmesine kadar geçen süreçteki başvuru kayıt, takip, değerlendirme ve tebliğ işlemlerinin elektronik ortamda yürütülmesi sağlanmıştır. Bundan böyle, hasta hakları uygulamaları HBB S üzerinden aşağıdaki düzenlemeler doğrultusunda yürütülecektir.

I) HASTA HAKLARI İL KOORDİNATÖRLÜGÜ: İl Sağlık Müdürlüğü bünyesinde; hasta hakları uygulamalarını il genelinde koordine etmek, denetlemek, hasta hakları kurullarının kurulması ve çalışması ile internet tabanlı hasta başvuru bildirim sisteminin çalışmasını sağlamak amacıyla hasta hakları il koordinatörlüğü kurulur. İl koordinatörlüğü, yeteri kadar sağlık ve genel idare sınıfı personelden oluşur. İl-koordinatörü: Hekim, sosyal hizmet uzmanı ya da psikolog öncelikli olmak üzere lisans mezunları arasından İl Sağlık Müdürünün teklifi, Valiliğin uygun görüşü ve Bakanlığın onayı ile belirlenir. Görevine aynı usulle son verilir. Görevini İl Sağlık Müdürüne bağlı olarak yürütür. Bu genelgenin yayım tarihinde hasta hasta hakları il koordinatörlüğü görevini yürütenler, eğitim durumları ve unvanlarına bakılmaksızın bir defaya mahsus olmak üzere hiçbir onaya gerek kalmaksızın görevlerine devam ederler. Görevlerinden ayrılmaları halinde bu hakları sona erer.

İl koordinatörünün görevleri: a) Hasta hakları kurulunu kurar ve kurulun sekretarya hizmetlerini yürütmek üzere yeterli sayıda personelin görevlendirilmesini sağlar.
b) HBBS'nin işleyişini ve kurul kararlarının uygulanmasını takip eder. HBBS'de hasta iletişim birim sorumlularının göreve başlayış ve ayrılışlarını takip ederek yetkilendirilmesini sağlar.
c) Kurulun toplanması, üye görevlendirilmesi ve üyeliğin sona ermesi gibi kurulun çalışmasına ilişkin işlemleri yürütür.
Hasta Hakları ve Tıbbi Sosyal Hizmetler Daire Başkanlığı Ayrıntılı bilgi için irtibat: Mithatpaşa Cad. …

d) Birden fazla kurul oluşturulması halinde sağlık kuruluşlarının bağlı olacağı kurul ile değişiklik taleplerini değerlendirir.
e) Hasta hakları uygulamalarını il genelinde koordine eder ve bu konuda danışmanlık yapar. Gereği halinde uygulamaları yerinde denetler ve hasta hakları ihlaline sebep olabilecek hususları yerinde inceler/inceletir.
f) İhtiyaç halinde ilde hasta hakları ile ilgili seminer, toplantı ve eğitim düzenler.
g) Kurul kararlarının özetini, başvuru tarihi, başvuru konusu, karar tarihi ve sayısı ile sağlık tesisi ismi belirterek kişi isimlerine yer vermeden il sağlık müdürlüğünün internet sayfasında duyurulmasını sağlar.

2) HASTA HAKLARI KURULU: Kurulun yeri ve sayısı: Başvuru sayısı ve sağlık kuruluşlarının fiziki konumlarına göre İl Sağlık Müdürlüğü bünyesinde uygun görülen yerlerde birden fazla kurul oluşturulabilir. Bu durumda kurul isimleri sayı ile ifade edilir. Başkan ve üyeler: Kurul; başkan, sendika işyeri temsilcisi, kurum temsilcisi, dernek temsilcisi ve vatandaştan oluşur. İl Sağlık Müdürü veya görevlendireceği hasta hakları koordinatörü veya sağlık müdür yardımcısı başta olmak üzere en az lisans mezunu, hasta hakları konusunda deneyimi veya eğitimi olan, tercihen idari pozisyonu bulunan bir üye kurula başkanlık eder. ilçede kurul oluşturulacaksa, İl Sağlık Müdürünün görevlendireceği, İlçe sağlık müdürü veya en az lisans mezunu düzeyinde hasta hakları konusunda deneyimi veya eğitimi olan bir üye kurula başkanlık eder.

Diğer kurul üyeleri:

a) Şikâyet edilen personelin varsa üyesi olduğu sendikanın işyeri temsilcisi,

b) Şikâyet edilen personelin görev yaptığı kurumun ildeki üst yöneticisi tarafından görevlendirilen bir kurum temsilcisi (üniversite rektörlüğü, halk sağlığı müdürlüğü, kamu hastaneleri birliği genel sekreterliği),

c) Şikâyet edilen personel özel sağlık kuruluşunda ise kuruluş mesul müdürü tarafından görevlendirilen bir temsilci,

d) Şikâyet edilen personel askeri hastanede ise, askeri hastane başhekimliğince görevlendirilen bir temsilci,

e) Hasta hakları derneklerinden bir temsilci, hasta hakları derneği yoksa ya da temsilci bildirmemişse tüketici derneklerinden bir temsilci

f) Valilikçe görevlendirilen bir vatandaştan oluşur. Toplum sağlığı merkezleri ve bağlı birimleri ile entegre sağlık hizmeti sunulan birinci basamak kamu sağlık tesislerinde çalışan personel hakkında başvuru yapıldığında, sendika temsilcisi kurul üyesi olarak, halk sağlığı müdürlüğündeki sendika temsilcisi görevlendirilir. İl Halk sağlığı müdürlüğünde sendika temsilcisi bulunmaması durumunda ise üyesi olduğu sendikanın il temsilciliğinden bir kişi, özel sağlık tesisleri için ise şikâyet edilen personelin üyesi olduğu sendikanın il temsilciliğinden bir kişi üye olarak katılabilir. Kurulda görev almak isteyen dernekler İl Sağlık Müdürlüğüne başvurur. Birden fazla hasta hakları derneğinin veya tüketici derneğinin başvurması durumunda, öncelikle hasta hakları derneklerinden yoksa tüketici derneklerinden bir dernek temsilcisi il sağlık müdürlüğünce kura yoluyla belirlenir. Beyana göre sağlık kuruluşuyla ticari ilişkisi olamayan dernek ve dernek üyesi kurulda görevlendirilir.

¥ Hasta Hakları ve Tıbbi Sosyal Hizmetler Daire Başkanlığı Mithatpaşa Cad. …

Sağlık Hizmetleri Genel Müdürlüğü Kurula temsilci gönderecek kurumlar her kurul için bir asil bir yedek olmak üzere yasal süreler içinde görev yapacak daimî iki temsilci ismi bildirir. Asil üyelerin mazereti sebebiyle toplantıya katılamaması halinde yerlerine yedek üyeler katılır.

• Kurulda görev yapacak vatandaşın gönüllüler arasından seçilmesi esastır. Kurula katılacak vatandaşta aşağıdaki nitelikler aranır:

a) Beyanına göre kendisi ve birinci derece yakınlarının, görev yaptığı kurulun görev alanına giren sağlık tesisleriyle ticari ilişkisi bulunmamak.

b) Kamu haklarını kullanmaktan kısıtlı olmamak. Üyeliğin sona ermesi: Sivil toplum temsilcisi ve sendika temsilcisi olan üyelerin görev süresi takvim yılıdır. Diğer komisyon üyelerinin görev süresi iki yıldır. Süresi dolan üyeler tekrar görevlendirilebilir. Kurul toplantılarına mazeretsiz olarak üst üste üç defa katılmayan üyenin üyeliğine İl Sağlık Müdürlüğünce son verilir. Bu kişiler üç yıl süreyle yeniden üye olarak seçilemez. Herhangi bir sebeple boşalan

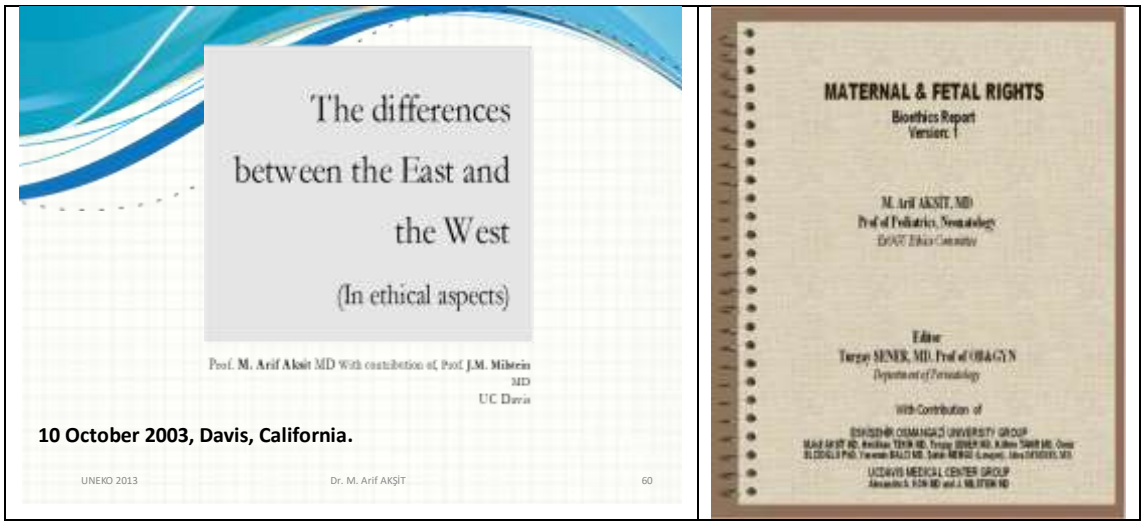
üyelik için kalan süreyi tamamlamak üzere yeni üye seçilir. Hasta hakları mevzuatına aykırı davranışı tespit edilen kurul üyelerinin üyeliğine İl Sağlık Müdürlüğünce son verilir ve bunlar beş yıl süreyle yeniden üye olarak seçilemez.
Görevleri, çalışma usul ve esasları: a) Kurul, hasta iletişim birimlerince yerinde çözülmeyen hasta hakları ile ilgili başvuruları hasta hakları ihlali olup olmadığı yönünde değerlendirir, karara bağlar, gerektiğinde öneri sunar ve düzeltici işlem kararı verebilir. Gerek gördüğünde ilgilileri kurula davet edebilir.
b) Kurul kararlarının objektifliği, mahremiyeti ve gizliliğinin sağlanmasına azami özen göstererek başvuruları değerlendirir.
c) Kurul en geç on beş günde bir toplanır.
d) Kurul, başvurunun kurula ulaştığı tarihten itibaren otuz gün içerisinde başvuru hakkında karar verir.
e) Kurul salt çoğunlukla toplanır ve katılanların da salt çoğunluğuyla karar alır. Oyların eşitliği halinde başkanın taraf olduğu görüş kabul edilir. Başkan oyunu en son açıklar. İtiraz eden üyenin karşı oy gerekçeleri, karara özet olarak yazılır. Alınan kararlar başkan tarafından kurul üyelerine imzalatılır.
f) Son altı ay içerisinde ikiden fazla hak ihlali kararı verilen sağlık meslek mensubu hakkındaki dosya, il sağlık müdürlüğünün hazırlayacağı kanaat raporuyla birlikte sağlık meslekleri kuruluna iletilmek üzere Sağlık Hizmetleri Genel Müdürlüğüne gönderilir.
g) Kurul kararına, tebliğ veya e-posta gönderim tarihinden itibaren 10 gün içerisinde itiraz edilebilir. İtiraz kurulda ikinci kez görüşülerek nihai karara bağlanır. Süresi içerisinde itiraz edilmeyen başvurular değerlendirilmeye alınmaz. Son itiraz mercii hasta hakları kuruludur.

NEONATOLOJİ AÇISINDAN: Şikâyet eden kişi ve avukatları temsil edilirken, şikâyete maruz kalan kişi yoktur. Kurum temsilcisi nasıl vekalet edecektir? Nitekim yukarıda belirtilen durumda, yaşam hakkı temel alınmaz ise hekim suçlu sanılmıştır. Burada ilk aşamada haksız nitelendirilmiş, bu konuda geniş bilgilendirme yapılıp, buna uymayan kişilerde dava konusu edilecektir denilince, oy birliği ile, hasta tarafı hariç hekim haklı görülmüştür.

Perinatoloji/Neonatoloji Etik Bildirge ve Yayınları

Neonatoloji ve Perinatoloji olarak ayrıca Bildirgelerin olduğu da dikkate alınmalıdır.

1. 1989 Çocuk Hakları
2. 2001 Barcelona
3. 2002 Rights of Embryo and foetus in Private Law (Turkish National Report)
4. 2006 Yaşam Hakkı (Avrupa Konsey Kılavuzu)
5. 2009 J. Perinat. Med. 37 (2009) N1–N3 İSTANBUL DECLARATION ON ETHICS IN PERINATAL MEDICINE
6. 2009 J. Perinat. Med. 37 (2009) Women and children first–or last? The New York Declaration
7. 2010 J. Perinat. Med. 38 (2010) 579–583 Ethical dimensions of periviability
8. 2011 *Türk Neonatoloji Derneği Bülteni, Sayı: 23 – 2011* Yaşam Hakkı ve Yaşam Sınırında Olanlar İçin Etik İlkeler



Şekil 3: 2003 Yılında oluşturulan; the Differences between the East and West (In Ethical aspects), sona takiben İstanbul Bildirgesine temel olan; Maternal and Fetal Rights, (Bioethics Report) kitapları ile Yazar bu konuya katkı sağlamaya çalışmıştır.

Yorum

Temel Neonatoloji yaklaşımlarında yapılacakların yol gösterici (guide-line) şeklinde sunulan Tıbbi Kitaplar olduğu görülmektedir. Burada belirli eşeller ve yaklaşım boyutları da belirtilmektedir.

Konu girişim yapılan sınırda yaşam boyutunda olan veya engelli çocukların yapılıp yapılmaması olmaktadır. Bu hekimin inisiyatifine bırakılmasından önemlidir.

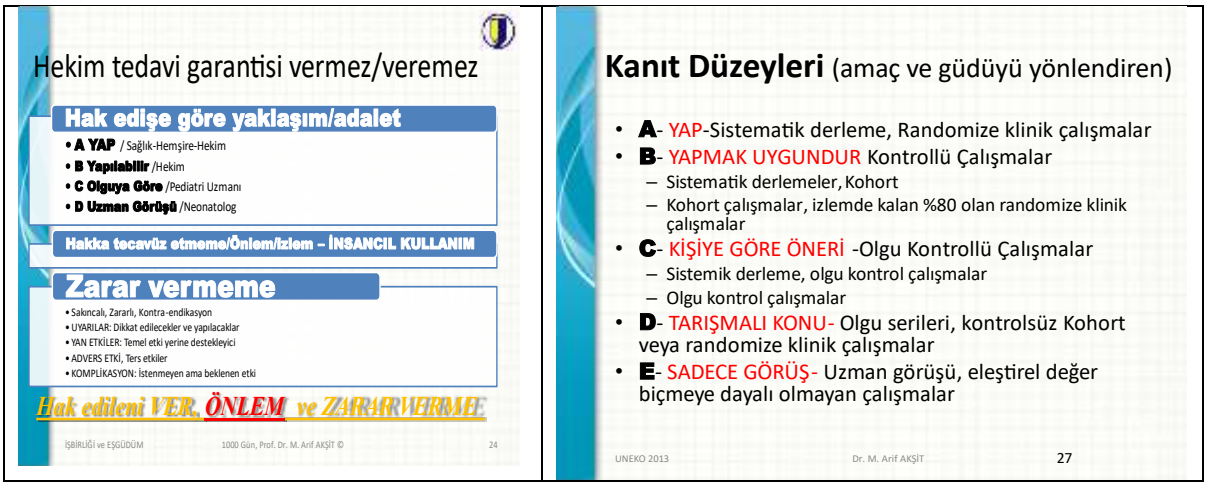
Yukarıdaki listede sunulanların sıklıkla Yaşam Hakkı boyutu ile ilgili olduğu görülecektir.

Sizin çabanız sonucunda biyolojik yaşam ortamını, kısaca oksijenlenmeyi sağlarsanız, beyin ve diğer organ hücre ölümleri gerçekleşmez. Bebek hemen ölmez, bir müddet daha yaşayabilir. An-ensefalili bir bebeğin yaşaması ile, akciğerleri daha matür olduğundan, anne sekizinci hamileliğinden olan bebek idi. 8 Ay yaşadı, sık hekim kontrolüne de gelmişti. Öldükten sonra teşekküre geldi, yaşamımda bir bebeğin kokusunu ve özlemini gidermiş oldum dedi. Yaşatmak için sizlerin çabası da insanlığa karşı duyduğum güveni pekiştirdi diye de ekledi.

Genel Değerlendirme

Konulara şematik, sunum olarak özetlersek, aşağıdaki yaklaşımların izlenmesi önerilir.

Tıbbi yaklaşım Yapılanması



Şekil 2: Tıbbi yaklaşımlar bireye göre yapılmalıdır. Tercih A gruptur ama hekim olguya göre uyarlama yapar.

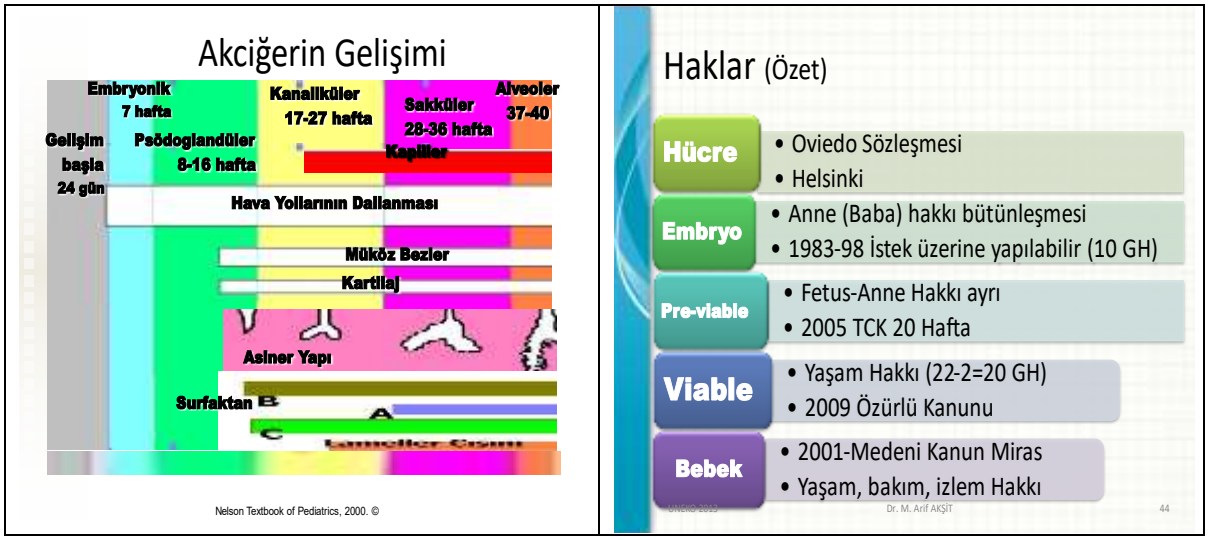
Kanıt Düzeyine göre yaklaşım, bireye özgü verilere göre yapılmalıdır. Bunlarda YAP denilenlerde bile %5-15 farklı netice alınacağı, bu nedenle izlem ile kontrolü şarttır. YAPILABİLİR olanda ise %25 kadar beklenenden sapma olabilmektedir.

Kültürel yapıya göre yaklaşım; zamanımızda birey hakkı temelinde olmaktadır

Şekil 3: Zamanımızda Birey Hakkı temelinde amaç ve güdü; fizyolojik destek, fizyopatolojiyi önlem ve sonra tedavi gelmektedir.

Mahkemelerde hâkim karar vermeden önce, tıbbi yaklaşımların gerekçesi ve dayanaklarına bakarken, amaç ve güdü sorgular. Amaç etik ilkeler olmalı, izlem de güdünün sorgulanmasıdır. Bu nedenle tümden yaklaşım boyutu bireye dayanılmalıdır.
Devamlı izlem demek, devamlı verilerin analizi ve kontrolü demektir.

Akciğer gelişimine göre özgün etik ilkeler konu edilmektedir.



Şekil 4: Haklar, bebeğin gelişimine göre oluşmaktadır.

Bebeğin embriyolojik gelişimine göre etik ilke sistemleri de farklılıklar gösterir.
İlk 10 hafta, burada şekilde 8 hafta ile başlayan Psödoglandüler safha boyutu öne alınmaktadır.

Bilgilendirme, Rıza almak için yaklaşım, Aydınlatma Basamakları

1.SAĞLIK DURUMU_____	**1.Hastalık bilgisi değil, bireye etkileyen durum**
2. SORUNUN OLASI SEBEPLERİ _____	**2.Nasıl Başlayıp, geliştiği, Bedeni etkilemesi)**
3. UYGULANACAK TIBBİ İŞLEMLER_____	**3.TANI İÇİN gereken yaklaşımlar, işlemler**
4. UYGULANACAK TEDAVİ İŞLEMLERİ ____	**4.TEDAVİ ve** tedavinin gerekçeleri
5. FAYDA ve MUHTEMEL SAKINCALAR____	**5.RİSKLER: Çekinilen ve Korkulanlar**
6. İLAÇLARIN ÖZELLİKLERİ_____	**6.İLAÇLARIN Yan etki, tesir**
7'a. ALTERNATİF TIBBİ MÜDAHALE _____	**7'a. ALTERNATİF USULLER**
7b. ALTERNATİF PROGNOZU_____	**7b. ALTERNATİF MÜDAHALE PROGNOZU**
8. HASTALIĞIN SÜRESİ ve NETİCELERİ ____	**8. HASTALIĞIN SEYRİ ve prognozu**
9. TEDAVİ SONRASI YAPILACAKLAR _____	**9. TEDAVİ SONRASI oluşacak durumlar**
10. YENİDEN TIBBİ YARDIM_____	**10. YENİDEN ULAŞACAĞI YER (Kontrol)**
11. TEDAVİYİ KABUL ETMEMESİ _____	**11. TEDAVİ REDDİ MUHTEMEL SONUÇLAR**

Şekil 5: Bilgilendirme bir tıbbi konuda yardım ötesidir.

Soru ve cevaplar ile hastalığın kişide yaptığı sorunlar, oluşabilecek sorunlar gibi öngörüler de eklenmelidir.

Ancak, gelecek bilinmez, sadece bilgidir, gerçek ve garanti verilemez.

Rıza bireye aittir, zorlama olmaz, sorumluluk o boyutta kişidedir.

Açlık grevi yapanlara, sadece şuur kaybında yardım edilir ama yardım için, şekerli kalorili elektrolitli sıvı desteği sağlanır, dolayısıyla süreç uzatılır ve akıl ve düşünmesi sağlanır.

Onay boyutu, bir işin resmi ve hukuki anlamda uygun olduğunun kabulüdür. Evlilikte söylenildiği gibi, *sizler kendi rızanız ile başvurdunuz, biz de evrakları inceledik, sizlerin evlenmenize karşı bir engel olmadığını gördük ve sizin başvurunuzu* ***onaylıyoruz****. Şimdi* ***kendi rızanız*** *ile serbestçe, hiçbir baskı altına olmadan evlenmeyi kabul ediyor musunuz* denilir, imzalanır.

Tabipler Birliğinin oluşturduğu Aydınlatılmış Onam Formu: Madde 26

METİN	VURGULAR
--Hastanın sağlık durumu ve konulan tanı, --Önerilen tedavi yönteminin türü, --Başarı şansı ve süresi, --Tedavi yönteminin taşıdığı riskler, --Verilen ilaçların kullanılışı ve olası yan etkileri, --Hastanın tedaviyi kabul etmemesi ile olan sonuçlar, --Olası tedavi seçenekleri ve riskleri	--Hastanın kültürel, toplumsal ve ruhsal durumuna --Anlaşılabilecek biçimde verilmelidir. --Diğer bilgilendirilecek kişileri, hasta belirler. --Her türlü girişim, hasta onamı ile yapılabilir. --Baskı, tehdit, eksik ya da kandırma ise geçersizdir --Acil durumlar yasal temsilcisinin izni alınır. --Hasta onamı dilediği zaman geri alabilir.

Şekil 6: Tabipler Birliği tanımı: Bilgilendirilmiş değil, Aydınlatılmış Onam demektedir, Hukukta Rıza tanımı vardır, Onam tanımı yoktur. Onam, rıza yerine kullanılmaktadır, onay kelimesi olamaz, uygun değildir.

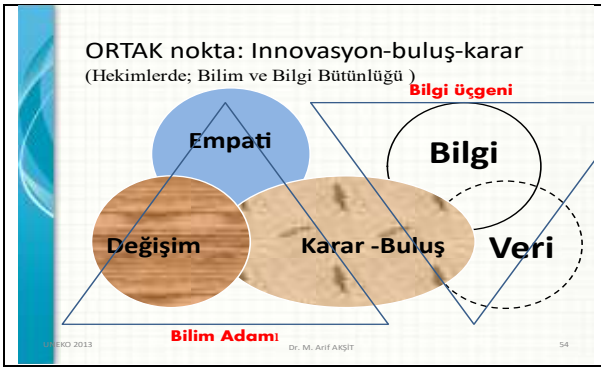
Ayrıca izin şart koşulmaktadır. Hasta veremiyorsa:

ACİL DURUMLARDA ONAM ALMA	TENKİTLER
--Yasal temsilcisinden alınır --Temsilcinin izin vermemesinin kötü niyete ise --Acil durum hastanın yaşamını tehdit ediyorsa --Adli mercilere bildirilerek izin alınmalıdır --Mümkün olmazsa meslektaşına danışmaya çalışır --Yalnızca yaşamı kurtarmaya yönelik girişimler --Acil müdahale etmek hekimin takdirindedir --Hasta/yasal onamı alınmasa da tedavi yapılanlar. • Tedavisi yasalarla zorunlu kılınan hastalıklar • Toplum sağlığını tehdit ettiği için uygulanır-	--Acil durumda temsilci bulunmaz --Yaşam tehlikede iken yaşam desteği sağlanır --Yaşamı tehdit etmeyen duruma acil denilmez --112 haber vermek zaten resmi tebliğdir --112 meslektaşa haber vermedir --Acil yaşama destek, canlandırma yaklaşımıdır --Hekimin takdiri değil, yapması gerekenlerdir --Yasa her türlü durumda hekim görevidir der • Acil yasal zorunluluktur • Birey sağlığı önce gelir

Şekil 7: Tabipler Birliği yaklaşımı öncelikle toplum olarak almakta, yasalar ise birey, kişi hakkı olarak tanımlamaktadır.

Tabipler Birliği ile Kanun boyutunda ayrım vardır, terminoloji boyutunda olsa bile, TCK ve CMK göre hukuk lisanı kullanılmalıdır.

Tıbbi Karar yapılanması: Bilgi Üçgeni ile Bilim Üçgeni bütünleşmesi



Kararların Tutarlılığı
(İdeal Gözlem Teorisi)

* Omniscience: Karar, tanı her kesim tarafından kolay kabul edilebilir olmalıdır.
* Omnipercipience: Karar, tanı, ilgili kişilerce empati yapar gibi değerlendirilmeli, benimsenmelidir.
* Disinterest: Karar, tanı, kabul görmeyen veya ilgi duyulmayan temellere dayandırılmamalıdır. Bilim dışı dayanak kabul edilemez.
* Dispasion: Karar, tedavi şekli, aşırı gergin ve ruhsal sıkıntılı dönemde alınmamalı, sağlıklı düşünebilecek ortamda alınmalıdır.
* Consistency: Etik olarak, benzer durumlarda kararlar aynı veya uyum içinde olmalıdır.

Şekil 8: Tıbbi yaklaşımlarda karar iki aşamalı, bir bilimsel veriler ve bilgi ile, bireye özgü olan empati/kişisel innovasyon ve değişim ile bütünleşme gereklidir.

Karar her zaman bilimsel tanımlanabilecek düzeyde (Kabul edilebilen, kişiye özgü, bilimsel dayanaklı, düşünerek rahat ve bilinçli olarak, benzer ve hukuka uygun olan bir şekilde) olmalıdır.

Sonuç ve Yorum

Bu yaklaşımlar belirtildikten sonra Neonatoloji Kapsamında yaşam felsefem olması nedeniyle vurguladığım boyutlar şunlardır. Bu duyguları taşıdığım için yenidoğanı seçtim.

- ***Yenidoğan Yaşamın ilk adımıdır, bunun sağlıklı olması için çaba gerekir***
- ***Sağlıklı olması, sağlıklı sevgi dolu evlilik, sağlıklı gebelik ve bu izlemi gerekli kılar***
- ***Hekimin başta gelen vazifesi, insan sağlığına, hayatına ve şahsiyetine ihtimam ve hürmet göstermek ise, yaşamın ilk aşamasında insanların en zayıf noktada iken, doğum ve ilk nefes almada yanında olmalıdır.***
- ***Bir bebeği beslemek, gaz çıkarması, idrar ve kaka yapmasını kucakta sağlayan kişi, sevgi okyanusunda boğulur gibi olur, Yenidoğan bunu sağlar.***
- ***Karşılıksız sevgi ve uykusuz geçen fedakarlığın sonucunu, bir gülüş ila alınan tek yer Yenidoğan Servisleridir denilebilir.***
- ***En üst teknoloji ve cihaz kullanım ötesinde, bilişim gelişimin yaşandığı yer, öğrenilen yer Neonatoloji olmaktadır.***
- ***Her bebeğe bir buluş, her yaklaşımda bir innovasyon yapılabilen yerdir Neonatoloji.***
- ***İnsanın insan olduğunun hissettiği, algıladığı ünitedir Neonatoloji.***
- ***Beş dakika içinde öleni yaşama döndürdüğünüz, Hz. İsa yaklaşımı yapılan yerdir Neonatoloji.***
- ***Aradan aylar geçer, bebeğin koşması, oynaması, yıllar geçer okuması, on yıllar geçer evlenir çocuk sahibi olur, bir hoş olur, mutluluktan ayağınız yere değmeyen yerdir Neonatoloji.***
- ***Devamlı eğitim, personel ile birliktelik, ilişkiler ve kopamayan bir sevgi halkasının olduğu yerdir Neonatoloji.***
- ***İnsan değerlerinin tümünün aktif olduğu, eşitlik, etkinlik, verimlilik kavramlarının yaratıldığı yerdir Neonatoloji.***
- ***Aktif yaşam bitip emekli olsanız bile, söylenecek çok şeyinizin olduğu kavramdır Neonatoloji.***
- ***Her bir insan sağlık yaklaşımında bulunabilir, ama Neonatoloji de çalışanların sevgi ve insanlık boyutunu Tıp Bilimi ve Becerisi ile yoğurması gereklidir. Uzun değil, kısa süre bile çalışamazlar. Örnek; size kakası süt kokar, ona ise iğrençtir.***
- ***Neonatoloji yaklaşımları yapan hekim, var olmanın, eğitilmiş, hekim olmanın anlamını, beceri ve bilimsel yaklaşımın anlamını kavramayı öğrenen karayan, kanıta dayalı, bireye özgü yaklaşım yapan kişidir.***
- ***Neonatolog daima bir gurur, bir onur içinde olduğunu algılar, alçak gönüllü boyutu ile insanlar ile iletişim ve ilişkinin önemini kavrayan kişidir.***

- ***NEONATOLOJİ insanın gebelik fizyolojisinden yaşadığımız ortama yeni nesillerin geçebilmesindeki önemi Homo sapiens, sapiens'in gelecekteki varlığı demektir.***
- ***NEONATOLOJİ Yaşam Hakkı ile tüm insanlık değerlerinin savunucusu, koruyucusu bir Bilim Dalıdır.***
- ***NEONATOLOJİ aylarca devamlı bir prematürenin yaşatılması çabası ile bir fedakârlığın temsilcisidir.***
- ***NEONATOLOJİ yaklaşımlarda, uygulamalarda sevgi olmadan oluşamaz, yaklaşım bile yapılamaz. Dolayısıyla sevginin kaynağı olmalıdır.***

- ***NEONATOLOJİ Yaşam Hakkı, var oluş gibi insanlık değerlerinin sevgi ve insanlık boyutu ile bütünleşmesi ile bu değerlerin oluşmasını sağlayan bilim dalıdır.***
- ***NEONATOLOJİ çalışanlarının net kavradığı gibi, sevgi, insanlık, etik değerlerinin kavranması anne kucağı, emzirme boyutu ile oluşması, sürdürülebilir boyutunun da kucak, sevmek ve gülücük olduğu bilinci ile yaklaşırlar.***
- ***NEONATOLOJİ bir prematürenin canlanmasında oluşan çaba, ideal bir iş birliği, eşgüdüm ve hoşgörünün örneğidir***
- ***NEONATOLOJİ her bebeğe yaklaşımlarda, alınan kararlarda, innovasyon, devamlı buluş ve gelişim üzere değişimi öngörmesi, bireye göre özel, özgün yaklaşımı var eden ve yaşayan bir ünitedir.***
- ***NEONATOLOJİ yaklaşımda prematürenin büyüme, gelişme, erişkin olması, evlenmesi, çocuk sahibi olması ile yaşanan mutluluk tanımlanmaz ve bu yaşamın gayesini oluşturur.***
- ***NEONATOLOJİ doğumhanede oluşan çabanın, kendi varlığın ötesinde algılayarak, cana can katmanın anlam ve değerini algılamamızı sağlayan bir süreç, oluşumdur.***
- ***NEONATOLOJİ aynı zamanda bize doğruluk, hakikat, çabanın sonucunda oluşan değer, insanlık ve saygı ve hürmetin anlamını tanımlayan, yaşatan bir süreçtir.***
- ***NEONATOLOJİ toplum algısı, ortak akıl, kamu vicdanı ve ideal yaklaşımlar yerine gerçek ve bireyin yaşam ve var oluşu mücadelesini yapan, yaşam hakkını her boyutta savunan, oluşturan bir ekiptir. Kalıp değil hastaya bakan, hastalık yok, Hasta Var diyen bir zihniyetin temsilcilerinin olduğu yerdir.***
- ***NEONATOLOJİ tüm bu yaklaşımlar ile kavramsal, gerçekçilik ile sevgi ve insanlığın temsil edildiği, hukuksal hakların sağlandığı birimlerdir.***

Neonatoloji benim kendim olduğum, sevdiğim, yaşamımın gerekçesi, varlığımın olduğu yerdir.

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