

Medical Data Privacy and Ethics in the Age of Artificial Intelligence

Lecture 4: Medical Ethics

Zhiyu Wan, PhD (wanzhy@shanghaitech.edu.cn)

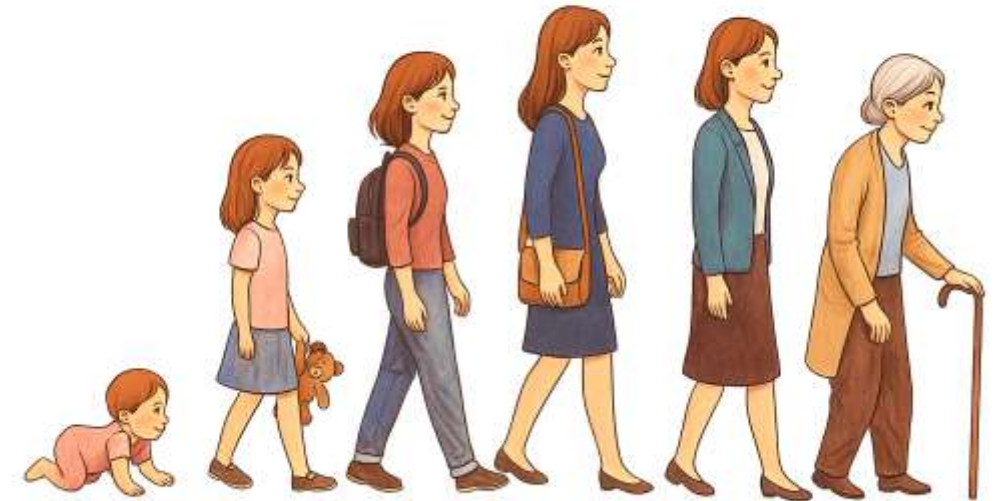
Assistant Professor of Biomedical Engineering

ShanghaiTech University

October 11, 2025

Learning Objective of This Lecture

- Know four principles of medical ethics



Credit: ChatGPT-5 prompt: "The lifetime of a woman, white background, each stage separated."

https://www.reddit.com/r/notinteresting/comments/ixa4p7/your_age_depends_entirely_on_what_year_it_is/

Medical Ethics

The purpose of the WMA is to serve humanity by endeavoring to achieve the highest international standards in Medical Education, Medical Science, Medical Art and **Medical Ethics**, and Health Care for all people in the world.

- Hippocratic Oath
- Declaration of Geneva (1948)
- Declaration of Helsinki (1964) -- Ethical Principles for Medical Research Involving Human Participants (18th WMA General Assembly, Helsinki, Finland, June 1964)
- Latest version: the 75th WMA General Assembly, Helsinki, Finland, October 2024
- AMA Code of Medical Ethics (Adopted 1957; revised 2001)



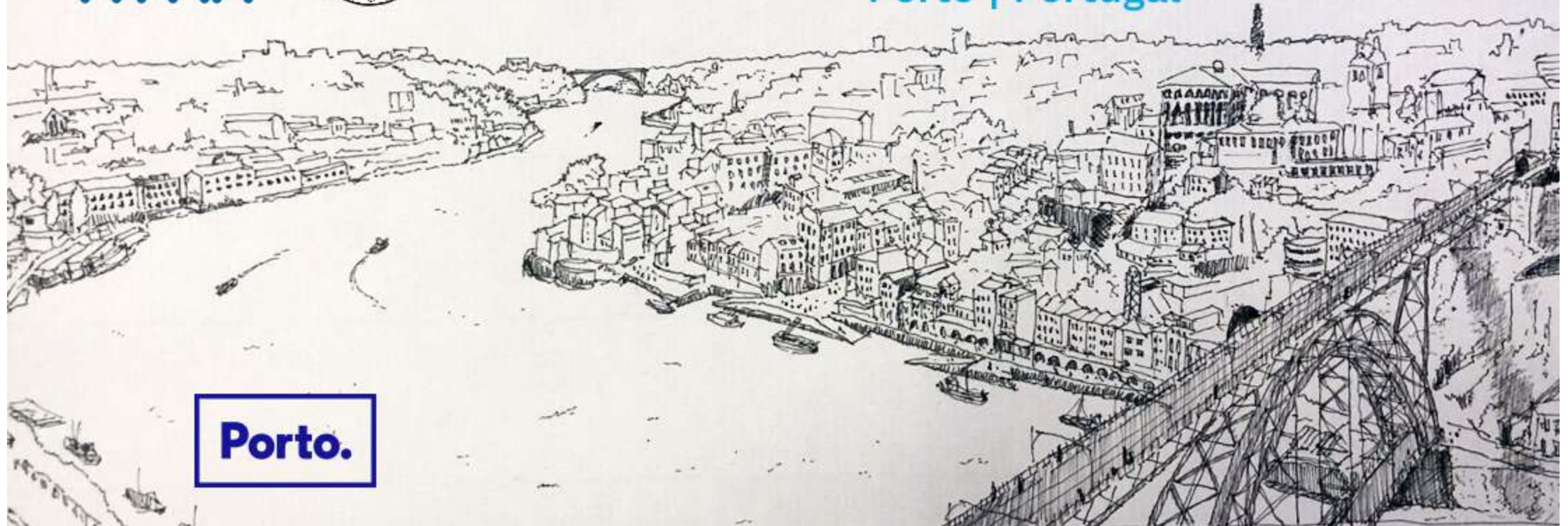
<https://www.wma.net/policies-post/wma-declaration-of-helsinki/>



ORDEM
DOS MÉDICOS

WMA General Assembly

8-11 October 2025
Porto | Portugal



Top High Impact Factor Journals

- A list of top 20 high impact factor journals across various subject areas for 2024
 - A good impact factor can vary by field, but in many scientific disciplines, an IF above 5 or 10 is often considered high.
 - In many fields, a journal with an impact factor between 1 and 5 might be considered average.

<https://www.enago.com/academy/top-high-impact-factor-journals/>

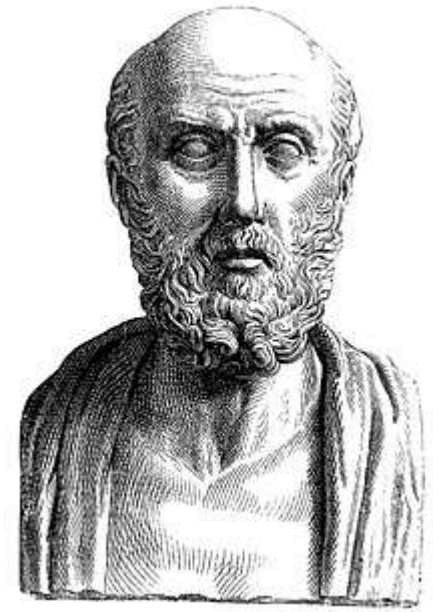
Sr. No.	Journal	Impact Factor
1.	CA-A Cancer Journal for Clinicians	254.7
2.	Lancet	168.9
3.	New England Journal of Medicine	158.5
4.	JAMA-Journal of the American Medical Association	120.7
5.	Nature Reviews Drug Discovery	120.1
6.	Nature Reviews Molecular Cell Biology	112.7
7.	BMJ-British Medical Journal	105.7
8.	Nature Reviews Immunology	100.3
9.	World Psychiatry	73.3
10.	Lancet Psychiatry	64.3

Four Pillars of Medical Ethics

- **Beneficence** (doing good)
- **Non-maleficence** (to do no harm)
- **Autonomy** (giving the patient the freedom to choose freely, where they are able)
- **Justice** (ensuring fairness)
- **Further Concepts:**
 - Consequentialism (E.g., Is lying OK or not? OK.)
 - Deontology (Idealism. E.g., Lying is not OK.)
 - Utilitarianism (Maximize the overall utility of the society. E.g., Trolley problem.)

Hippocratic Oath

- The Hippocratic Oath is an oath of ethics historically taken by physicians.
- The earliest expression of medical ethics in the Western world.
- The oldest partial fragments of the oath date to circa AD 275.
- “Practice two things in your dealings with disease: either help or **do not harm** the patient.”
- Still in use today by many US medical schools.



The Greek physician Hippocrates (460–370 BC), to whom the oath is traditionally attributed.

Hippocratic Oath (1964, by Louis Lasagna)

- I swear to fulfill, to the best of my ability and judgment, this covenant:
- I will respect the hard-won scientific gains of those physicians in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow.
- I will apply, for the benefit of the sick, all measures [that] are required, avoiding those twin traps of overtreatment and therapeutic nihilism.
- I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug.
- I will not be ashamed to say "I know not", nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery.
- I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God.

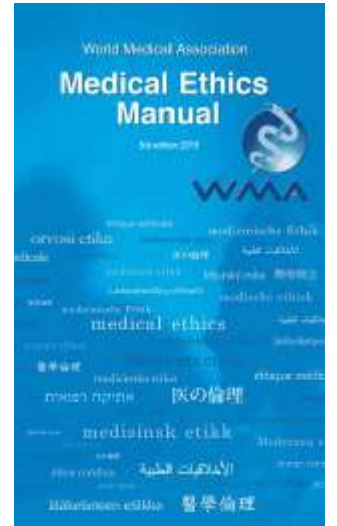
Hippocratic Oath (1964, by Louis Lasagna)

- I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.
- I will prevent disease whenever I can, for prevention is preferable to cure.
- I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm.
- If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter. May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.



A 12th-century Byzantine manuscript of the Oath in the form of a cross

Patient's right to confidentiality



■ The WMA Declaration on the Rights of the Patient

- All identifiable information about a patient's health status, medical condition, diagnosis, prognosis and treatment and all other information of a personal kind, must be kept **confidential**, even after death. Exceptionally, the descendants may have a right of access to information that would inform them of their health risks.
- Confidential information can only be disclosed if the patient gives **explicit consent** or if expressly provided for in the law. Information can be disclosed to other healthcare providers only on a strictly "need to know" basis unless the patient has given explicit consent.
- All **identifiable patient data** must be protected. The protection of the data must be appropriate to the manner of its storage. Human substances from which identifiable data can be derived must be likewise protected.

<https://www.wma.net/what-we-do/education/medical-ethics-manual/>

Beginning-of-Life Issues

Right to Abortion



- Roe v. Wade, 410 U.S. 113 (1973)
- “Jane Roe” (Norma McCorvey) vs Henry Wade, Texas’s abortion laws
- A landmark decision of the U.S. Supreme Court in which the Court ruled that the Constitution of the United States protected the right to have an abortion prior to the point of fetal viability.
- On January 22, 1973, Supreme Court issued a 7–2 decision in McCorvey's favor holding that the Due Process Clause of the Fourteenth Amendment to the United States Constitution provides a fundamental “right to privacy”, which protects a pregnant woman's right to an abortion.

Overruling Right to Abortion

- Dobbs v. Jackson Women's Health Organization, 597 U.S. 215 (2022).
- The case concerned the constitutionality of a 2018 Mississippi state law that banned most abortion operations after the first 15 weeks of pregnancy. Jackson Women's Health Organization—Mississippi's only abortion clinic at the time—had sued Thomas E. Dobbs, state health officer with the Mississippi State Department of Health, in March 2018.
- A landmark decision of the U.S. Supreme Court in which the court held that the Constitution of the United States does not confer a right to abortion. The court's decision overruled both Roe v. Wade (1973).
- On June 24, 2022, by a vote of 6–3, the Supreme Court struck down the right to abortion previously guaranteed by the United States Constitution, holding that regulation of abortion is a matter for states to decide.

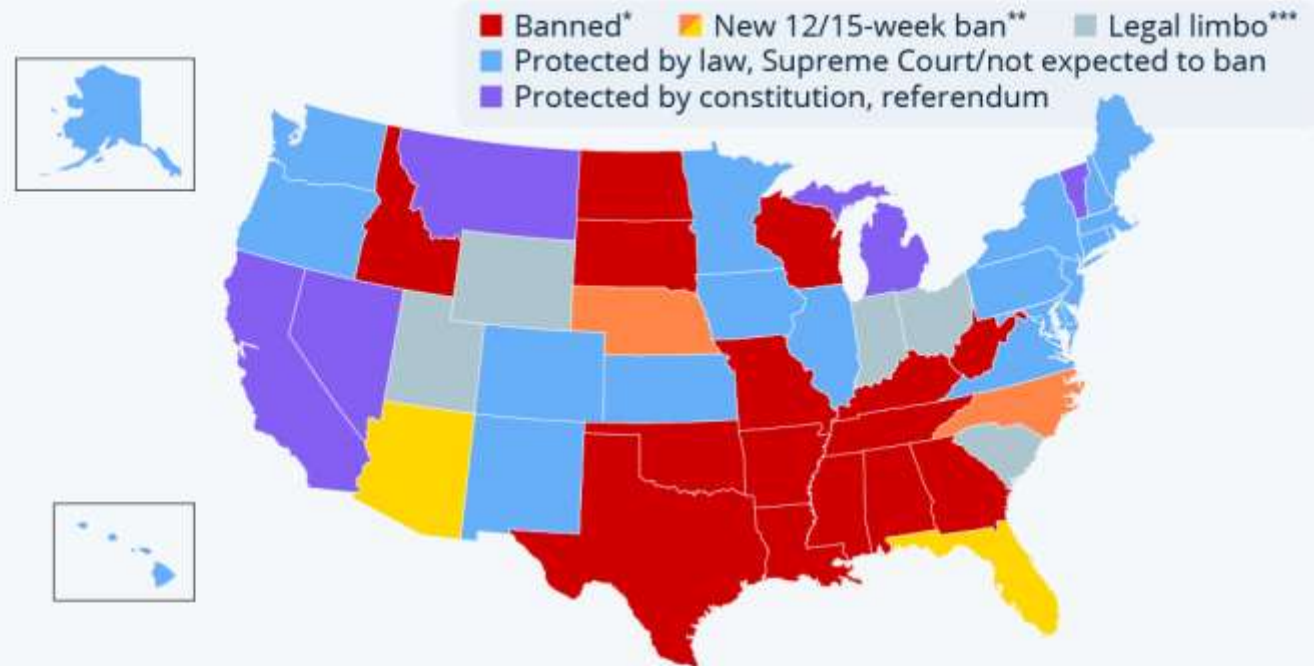
Clayton EW, Embí PJ, Malin BA. Dobbs and the future of health data privacy for patients and healthcare organizations. Journal of the American Medical Informatics Association. 2023 Jan 1;30(1):155-60.

Post-Roe v. Wade

- The WMA **Statement on Therapeutic Abortion** acknowledges this diversity of opinion and belief and concludes that “This is a matter of individual conviction and conscience that must be respected.”

Post-Roe v. Wade: The State of U.S. Abortion Laws

Legal status of abortion post-Roe v. Wade
in the United States (as of June 23, 2022)



Some bans have exceptions in case of rape, danger to life/health of mother
* Incl. 6-week bans ** Fla: May be reduced to 6 weeks, N.C.: Takes effect July 1
*** Utah: restricted to 18 weeks

Sources: Washington Post, Statista research

Beginning-of-Life Issues



- Contraception (Birth control)
 - Although there is increasing international recognition of a woman's right to control her fertility, including the prevention of unwanted pregnancies, physicians still have to deal with difficult issues such as requests for contraceptives from minors and explaining the risks of different methods of contraception.
- Assisted Reproduction
 - The 2006 WMA **Statement on Assisted Reproductive Technologies** notes that "whilst consensus can be reached on some issues, there remain fundamental differences of opinion that cannot be resolved." The statement identifies areas of agreement and also highlights those matters on which agreement cannot be reached."

Beginning-of-Life Issues

■ Prenatal Genetic Screening

- Genetic tests are now available for determining whether an embryo or foetus is affected by certain genetic abnormalities and whether it is male or female. Depending on the findings, a decision can be made whether or not to proceed with pregnancy. Physicians need to determine when to offer such tests and how to explain the results to patients.

■ Severely Compromised Neonates

- Because of extreme prematurity or congenital abnormalities, some neonates have a very poor prognosis for survival. Difficult decisions often have to be made whether to attempt to prolong their lives or allow them to die.



Alumni - December 3, 2019

JAMA Letter from Bioethics Alum Revisits Research on Separating Adopted Twins at Birth

BIOETHICS

Adam M. Kelmenson, an alumnus of the [M.S. in Bioethics program](#), has published [a letter to the editor in JAMA: The Journal of the American Medical Association](#). The letter, in response to an earlier article on Dr. Peter Neubauer's 'A Longitudinal Study of Monozygotic Twins Reared Apart,' questions the ethics of mid-century adoption practices and critiques the response to ongoing strife of surviving study participants. Neubauer's work became the center point of several recent films and concerns a controversial project that involved the separation of twins put up for adoption and studied through longitudinal psychological research.

Co-authored with Ilene Wilets, PhD, Kelmenson's letter concerns a previous study of the separation practice and the way it had been characterized by the authors of another article.

***"To the Editor** Drs Hoffman and Oppenheim discussed Peter Neubauer's study of twins separated at birth in an Arts and Medicine article reviewing 2 documentaries on the 1960s practice of separating identical twins and triplets put up for adoption as infants.¹ Their defense of the controversial research rested on an explanation of mid-century adoption views and research practices. The authors contended that the practice of Louise Wise Services, the now defunct adoption agency that separated identical siblings, was "characteristic of the era's thinking." Our research on Neubauer's study produced evidence to the contrary."*

Kelmenson is affiliated with the Department of Bioethics, Chinese University of Hong Kong Faculty of Medicine.

Kelmenson AM, Wilets I. Historical practice of separating twins at birth. JAMA. 2019 Nov 12;322(18):1827-.

End-of-Life Issues

- Euthanasia
 - knowingly and intentionally performing an act that is clearly intended to end another person's life and that includes the following elements: the subject is a competent, informed person with an incurable illness who has voluntarily asked for his or her life to be ended; the agent knows about the person's condition and desire to die, and commits the act with the primary intention of ending the life of that person; and the act is undertaken with compassion and without personal gain.
- Assistance in Suicide
 - knowingly and intentionally providing a person with the knowledge or means or both required to commit suicide, including counselling about lethal doses of drugs, prescribing such lethal doses or supplying the drugs.

End-of-Life Issues

- Physicians are understandably reluctant to implement requests for euthanasia or assistance in suicide because these acts are illegal in most countries and are prohibited in most medical codes of ethics. This prohibition was part of the **Hippocratic Oath** and has been emphatically restated by the WMA in its 2005 **Statement on Physician-Assisted Suicide** and its 2005 **Declaration on Euthanasia**.
- Euthanasia, that is the act of deliberately ending the life of a patient, even at the patient's own request or at the request of close relatives, is unethical. This does not prevent the physician from respecting the desire of a patient to allow the natural process of death to follow its course in the terminal phase of sickness.

Dual Loyalty

- **WMA International Code of Medical Ethics** states that “A physician shall owe his/her patients complete loyalty,” physicians may in exceptional situations have to place the interests of others above those of the patient.
- “Physicians should report to the appropriate authorities any unjustified interference in the care of their patients, especially if fundamental human rights are being denied.”
- “...physicians should resolve any conflict between their own interests and those of their patients in their patients’ favour. ”
- “...physicians are responsible not just for their own patients but, to a certain extent, for others as well. ”

Public Health

- Refers both to the **health of the public** and also to the **medical specialty that deals with health from a population perspective** rather than on an individual basis.
- **Epidemiology** is the study of the distribution and determinants of health and disease in populations
- Sometimes, though, the interests of public health may conflict with those of individual patients
 - when a **vaccination that carries a risk of an adverse reaction** will prevent an individual from transmitting a disease but not from contracting it
 - **when notification is required for certain contagious diseases**, for cases of child or elder abuse, or for conditions that may render certain activities, such as driving a car or piloting an aircraft, dangerous to the individual and to others.

Public Health

- In general, physicians should attempt to find ways to minimize any harm that individual patients might suffer as a result of meeting public health requirements.
 - When reporting is required, the **patient's confidentiality should be protected to the greatest extent possible** while fulfilling the legal requirements. (E.g., case reporting for **COVID-19**)
- A different type of conflict between the interests of individual patients and those of society arises when physicians are asked to assist patients to receive benefits to which they are not entitled.
 - **Insurance payments or sick-leave.** Although some physicians are unwilling to deny requests from patients for certificates that do not apply in their circumstances, they should rather help their patients find other means of support that do not require unethical behavior.

Medical Ethics Concerning Special Populations

- This require special considerations due to their unique legal, cognitive, and emotional statuses.
 - Ethical principles like **autonomy, beneficence, non-maleficence, and justice** must be carefully adapted to address the specific needs and vulnerabilities of these populations.
- **Infants and Neonates**
 - **Lack of Autonomy:** Infants cannot make medical decisions, so parents or legal guardians make choices on their behalf.
 - **Best Interest Standard:** Decisions should be made in the best interest of the child, balancing survival, quality of life, and long-term outcomes.
 - **Ethical Dilemmas in Neonatal Intensive Care (NICU):** With premature infants or those with severe congenital conditions, decisions about life-sustaining treatments (e.g., ventilation) must consider both survival chances and potential suffering.



(Assisted by ChatGPT)

Medical Ethics Concerning Special Populations

■ Children and Adolescents

- **Evolving Autonomy:** While minors typically require parental consent for medical decisions, their growing cognitive abilities raise ethical questions about assent and decision-making capacity.
- **Mature Minor Doctrine:** Some jurisdictions allow mature minors (typically 14-18 years old) to consent to certain treatments, especially in reproductive health, mental health, and substance abuse.
- **Confidentiality vs. Parental Involvement:** In cases like sexual health or mental health care, adolescents may have confidentiality rights that conflict with parental oversight.
- **Ethical Issues in Pediatric Research:** Special protections (e.g., minimal risk, necessity of parental consent, child assent) are required to prevent exploitation.



(Assisted by ChatGPT)

Medical Ethics Concerning Special Populations

■ Psychiatric Patients

- **Autonomy and Competence:** Many psychiatric patients can make informed decisions, but those with severe mental illnesses (e.g., psychosis, schizophrenia) may have impaired decision-making capacity.
- **Involuntary Treatment:** Ethical concerns arise when patients are treated against their will due to risks to themselves or others. Legal frameworks (e.g., involuntary hospitalization, guardianship) must balance individual rights and public safety.
- **Stigmatization and Discrimination:** Psychiatric patients often face bias in healthcare, which can lead to ethical violations such as inadequate treatment or coercion.
- **Use of Restraints and Seclusion:** These interventions should only be used as a last resort to prevent harm, following strict ethical and legal guidelines.

(Assisted by ChatGPT)

American Academy of Child and Adolescent Psychiatry (AACAP) Code of Ethical Principles

- **Developmental Perspective**

- Promoting the Welfare of Children and Adolescents (Beneficence)
- Minimizing Harmful Effects (Non-maleficence)

- **Assent and Consent (Autonomy)**

- Assent is an agreement by someone who is not legally able to give consent

- **Confidentiality (Autonomy/ Fidelity)**

- Third Party Influence (Fidelity)
- Research Activities
- **Advocacy and Equity (Justice)**
- Professional Rewards
- Legal Considerations



Medical Ethics Concerning Special Populations (Cont.)

▪ Geriatric and Cognitively Impaired Patients (e.g., Dementia, Alzheimer's)

- **Decision-Making and Advance Directives:** Patients with progressive cognitive decline require ethical considerations in honoring previously expressed wishes (e.g., advance directives, living wills).
- **Surrogate Decision-Making:** Family members or legally appointed guardians may have to make medical choices when the patient lacks capacity.
- **End-of-Life Care:** Ethical dilemmas include withholding or withdrawing life-sustaining treatment, palliative care, and assisted dying (where legal).



(Assisted by ChatGPT)

Medical Ethics Concerning Special Populations (Cont.)

■ Patients with Disabilities

- **Equal Access to Healthcare:** People with physical, intellectual, or developmental disabilities must receive equitable and non-discriminatory care.
- **Informed Consent Challenges:** Individuals with intellectual disabilities may need special communication strategies or supported decision-making processes.
- **Reproductive Rights and Ethical Concerns:** Sterilization, contraception, and reproductive decisions for disabled individuals pose ethical and legal challenges.

(Assisted by ChatGPT)

Medical Ethics Concerning Special Populations (Cont.)

■ Prisoners and Institutionalized Populations

- **Ethical and Legal Protections:** Prisoners have the right to medical care, but access to adequate treatment is often compromised by institutional constraints.
- **Consent and Coercion:** Prisoners may feel pressured to participate in medical research or procedures, requiring extra safeguards against coercion.
- **Mental Health Treatment:** High rates of mental illness in incarcerated populations raise ethical concerns about involuntary treatment and solitary confinement.



<https://www.istockphoto.com/illustrations/cartoon-of-a-prisoners>

(Assisted by ChatGPT)

Take-away messages

- Four Principles of Medical Ethics
 - **Beneficence** (doing good)
 - **Non-maleficence** (to do no harm)
 - **Autonomy** (giving the patient the freedom to choose freely, where they are able)
 - **Justice** (ensuring fairness)