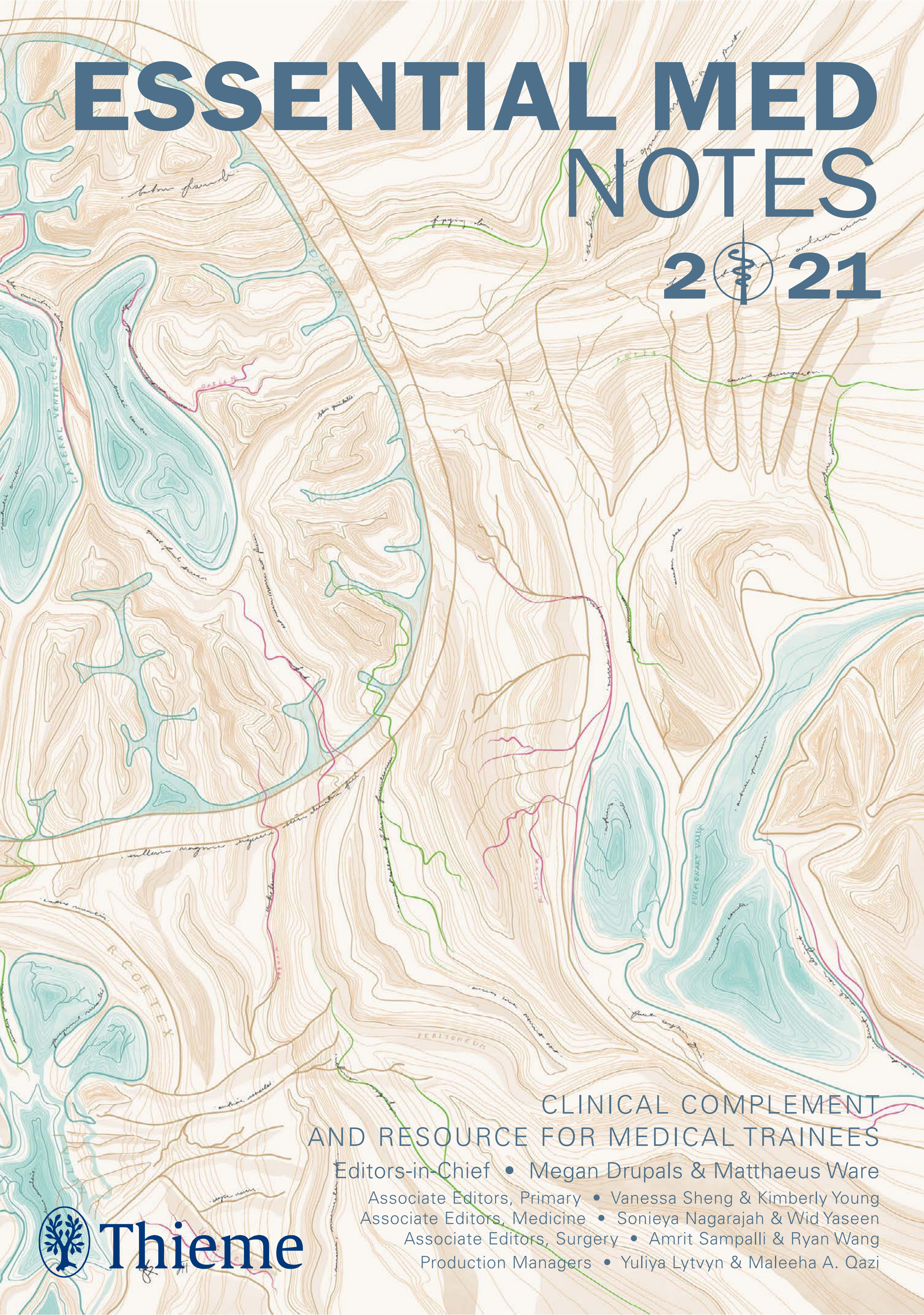
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2021
CLINICAL COMPLEMENT
AND RESOURCE FOR MEDICAL TRAINEES
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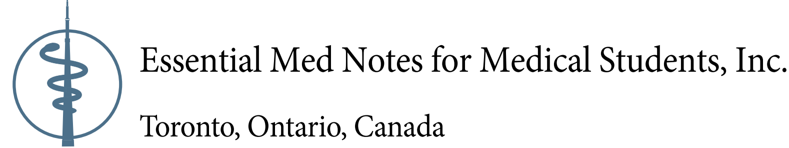
ESSENTIAL MED NOTES 2021

Clinical complement and resource for medical trainees

37th Edition

Editors-in-Chief:
Megan Drupals & Matthaeus Ware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Toronto, Ontario, Canada

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Many of you have wondered about the *Essential Med Notes* logo, which is based on the rod of Asclepius, the Greek god of medicine. The rod of Asclepius consists of a single serpent entwined around a staff. This icon symbolizes both rebirth, by way of a snake shedding its skin, and also authority, by way of the staff.

In ancient Greek mythology, Asclepius was the son of Apollo and a skilled practitioner of medicine who learned the medical arts from the centaur Chiron. Asclepius' healing abilities were so great that he was said to be able to bring back people from the dead. These powers displeased the gods, who punished Asclepius by placing him in the sky as the constellation Orphiuchus.

The rod of Asclepius is at times confused with the caduceus, or wand, of Hermes, a staff entwined with two serpents and often depicted with wings. The caduceus is often used as a symbol of medicine or medical professionals, but there is little historical basis for this symbolism.

As you may have guessed, our logo uses the rod of Asclepius that is modified to also resemble the CN Tower – our way of recognizing the university and community in which we have been privileged to learn the art and science of medicine.

Thomas O'Brien, MD
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Preface – From the Editors

Dear reader,

We are grateful to present Essential Med Notes 2021 to you. This edition is the product of a myriad of efforts from the hundreds of exceptional editors and contributors who comprise our team. Together, we have created the thirty-seventh edition of Essential Med Notes, thus continuing our organization's rich tradition of providing an up-to-date, comprehensive, and concisely written medical resource to our readers.

Thirty-seven years ago, Essential Med Notes began as a humble initiative, with medical students from the University of Toronto collecting and circulating their notes. Nearly four decades later—with annual editions and an ever-expanding vision—Essential Med Notes has become one of the most trusted medical review texts; it is a resource that is cherished by trainees and physicians throughout Canada and around the world.

The Essential Med Notes for Medical Students Inc. is a nonprofit corporation whose mission is to provide a trusted medical resource in order to give back to our community. We are simultaneously proud and humbled to have led Essential Med Notes this year because we firmly believe in its mission. We have witnessed first-hand not only the value of the medical resource itself, but also the immense impact of Essential Med Notes Inc.'s financial support for so many important causes. All proceeds from Essential Med Notes sales are directly donated to support U of T Medicine initiatives including (for example) class activities, medical conferences, student scholarships and bursaries, our annual musical fundraiser for the Canadian Cancer Society, and the entirety of our (over twenty-five) student-led outreach programs that seek to enrich lives in the community.

This is why we, and all the members of our U of T team, gladly dedicated so many hours toward this immensely involved project. As our valued reader, we thank you for your honest and vital financial contribution through your purchase of our textbook. Each book sold makes an important difference.

The 2021 edition features substantial content revisions to the text, figures, and graphics of all 31 chapters, following a comprehensive review by our student and faculty editorial team. Up-to-date, evidence-based medicine studies are also summarized in highlighted boxes throughout the text. This year, one of our priorities was to focus our team's editorial lens on cultural sensitivity and health equity, as we continue striving for accurate representation of our vibrant and diverse communities. We especially thank all the members of our Content Review Committee, members of the Office of Indigenous Medical Education, and external contributors who helped us advance this ongoing effort.

Alongside our textbook-wide revisions, the Dermatology and Cardiology and Cardiac Surgery chapters have both received substantial expansions to increase their utility in practice. The Public Health and Preventive Medicine and the Ethical, Legal, and Organizational Medicine chapters have also been thoroughly revised and expanded for the 2021 edition with the support of the Content Review Committee.

We sincerely thank each of our 235 student editors and 104 faculty editors, whose meticulous revisions and shared dedication to the bettering of this text has helped make Essential Med Notes 2021 possible. We have learned so much from leading this team, and are especially grateful to everyone for committing to Essential Med Notes with time commitments and demands that have been altered by the COVID-19 pandemic. We thank our incredible Associate Editors—Sonieya Nagarajah, Amrit Sampalli, Vanessa Sheng, Ryan Wang, Wid Yaseen, and Kimberly Young—for their tireless leadership, exceptional organization, and wonderful teamwork. We, and the success of this edition, lean on their shoulders. We also thank our Clinical Handbook Editors—Kirusanthy Kaneshwaran, Amirpouyan Namavarian, and Healey Shulman—for their editorial leadership on this resource. We are grateful to our Production Managers—Yuliya Lytvyn and Maleeha A. Qazi—who make Essential Med Notes' operations a reality with their daily work. We owe a great deal of gratitude to the Editors-in-Chief of the 2020 edition—Sara Mirali and Ayesh Seneviratne—for their continued guidance over the past two years. Lastly, we thank our longtime partners at Type & Graphics Inc—especially our backbone, Enrica Aguilera—for their years of support and excellent work producing Essential Med Notes 2021.

Finally, we thank you for supporting our initiative by purchasing and reading our product. We hope that you will find Essential Med Notes 2021 to be a useful companion on your medical journey, both now and for years to come.

Sincerely,

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How to Use This Book

This book has been designed to remain as one book or to be taken apart into smaller booklets. Identify the beginning and end of a particular section, then carefully bend the pages along the perforated line next to the spine of the book. Then tear the pages out along the perforation.

The layout of *Essential Med Notes* allows easy identification of important information.
These items are indicated by icons interspersed throughout the text:

Icon	Icon Name	Significance
	Key Objectives	This icon is found next to headings in the text. It identifies key objectives and conditions as determined by the Medical Council of Canada or the National Board of Medical Examiners in the USA. If it appears beside a dark title bar, all subsequent subheadings should be considered key topics.
	Clinical Pearl	This icon is found in sidebars of the text. It identifies concise, important information which will aid in the diagnosis or management of conditions discussed in the accompanying text.
	Memory Aid	This icon is found in sidebars of the text. It identifies helpful mnemonic devices and other memory aids.
	Clinical Flag	This icon is found in sidebars of the text. It indicates information or findings that require urgent management or specialist referral.
	Evidence Based Medicine	This icon is found in sidebars of the text. It identifies key research studies for evidence-based clinical decision making related to topics discussed in the accompanying text.
	Color Photo Atlas	This icon is found next to headings in the text. It indicates topics that correspond with images found in the Color Photo Atlas available online (www.torontonotes.ca).
	Radiology Atlas	This icon is found next to headings in the text. It indicates topics that correspond to images found in the Radiology Atlas available online (www.torontonotes.ca).
	Online Resources	This icon is found next to headings in the text. It indicates topics that correspond with electronic resources such as Functional Neuroanatomy or ECGs Made Simple, available online (www.torontonotes.ca).

Chapter Divisions

To aid in studying and finding relevant material quickly, many chapters incorporate the following general framework:

Basic Anatomy/Physiology Review

- features the high-yield, salient background information students are often assumed to have remembered from their early medical school education

Common Differential Diagnoses

- aims to outline a clinically useful framework to tackle the common presentations and problems faced in the area of expertise

Diagnoses

- the bulk of the book
- etiology, epidemiology, pathophysiology, clinical features, investigations, management, complications, and prognosis

Common Medications

- a quick reference section for review of medications commonly prescribed

Common Acronyms & Abbreviations Used in Medicine

The following are common medical acronyms/abbreviations that may be used without definition throughout the Essential Med Notes text. These are typically not included in the acronym list at the beginning of each chapter. Please refer back to this list for definitions.

[ ]	concentration
β-hCG	beta human chorionic gonadotropin
ABx	antibiotics
ACE	angiotensin-converting enzyme
ACTH	Adrenocorticotropic hormone
AIDS	acquired immune deficiency syndrome
ALP	alkaline phosphatase
ALT	alanine aminotransferase
AR	absolute risk
ASA	acetylsalicylic acid
AST	aspartate transaminase
aSx	asymptomatic
AXR	abdominal x-ray
BID	twice a day (bis in die)
BMI	body mass index
BP	blood pressure
BPM/bpm	beats per minute
C/I	contraindication
C&S	culture and sensitivity
CAD	coronary artery disease
CBC	complete blood count
CC	chief complaint
CHF	congestive heart failure
COPD	chronic obstructive pulmonary disease
CPR	cardiopulmonary resuscitation
Cr	creatinine
CRH	corticotropin-releasing hormone
CSF	cerebrospinal fluid
CT	computed tomography
CXR	chest x-ray
D&C	dilatation and curettage
dBP	diastolic blood pressure
DDx	differential diagnosis
DM	diabetes mellitus
DNR	do not resuscitate
Dx	diagnosis
ECG	electrocardiogram
ED	emergency department
EEG	electroencephalography
EMG	electromyography
ENT	ears, nose, and throat
ESR	erythrocyte sedimentation rate
EtOH	ethanol/alcohol
FMHx	family medical history
FSH	follicle stimulating hormone
G6PD	glucose-6-phosphate dehydrogenase
GGT	gamma-glutamyl transferase
GH	growth hormone
GHB	gamma hydroxybutyrate
GI	gastrointestinal
GU	genitourinary
Hb	hemoglobin
HIV	human immunodeficiency disease
HR	heart rate
HTN	hypertension
Hx	history
I&D	incision and drainage
ICP	intracranial pressure
ICU	intensive care unit
IM	intramuscular
IV	intravenous
JVP	jugular venous pressure
LDH	lactate dehydrogenase
LFT	liver function test
LH	luteinizing hormone
LR	likelihood ratio

Common Acronyms & Abbreviation Used in Medicine

MAO	monoamine oxidase
MAOI	monoamine oxidase inhibitor
MDI	metered-dose inhaler
MI	myocardial infarction
MRI	magnetic resonance imaging
MSK	musculoskeletal
N/V	nausea/vomiting
NG	nasogastric
NMDA	N-Methyl-D-aspartate
NPO	nothing by mouth (nil per os)
NSAID	non-steroidal anti-inflammatory drug
OR	operating room
OTC	over-the-counter
PCR	polymerase chain reaction
PE	pulmonary embolism
PMHx	past medical history
PO	oral administration (per os)
POCUS	point-of-care ultrasound
PPI	proton pump inhibitor
PRN	as needed (pro re nata)
QID	four times a day (quater in die)
RBC	red blood cell
RCT	randomized controlled trial
ROS	review of symptoms
Rx	medical prescription
sBP	systolic blood pressure
SC	subcutaneous
SL	sublingual
SLE	systemic lupus erythematosus
SOB	shortness of breath
STAT	urgent or immediately (statum)
STI	sexually transmitted infection
Sx	symptom(s)
T1DM	type 1 diabetes mellitus
T2DM	type 2 diabetes mellitus
TB	tuberculosis
TID	three times a day (ter in die)
TNM	tumor, nodes, and metastases
TRH	thyroid releasing hormone
TSH	thyroid stimulating hormone
Tx	treatment
U/A	urinalysis
U/S	ultrasound
UTI	urinary tract infection
UTox	urine toxicology screen
VDRL	Venereal Disease Research Laboratory test
WBC	white blood cell
wt	weight

Common Unit Conversions

To convert from the conventional unit to the SI unit, **multiply** by conversion factor
To convert from the SI unit to the conventional unit, **divide** by conversion factor

	Conventional Unit	Conversion Factor	SI Unit
ACTH	pg/mL	0.22	pmol/L
Albumin	g/dL	10	g/L
Bilirubin	mg/dL	17.1	μmol/L
Calcium	mg/dL	0.25	mmol/L
Cholesterol	mg/dL	0.0259	mmol/L
Cortisol	μg/dL	27.59	nmol/L
Creatinine	mg/dL	88.4	μmol/L
Creatinine clearance	mL/min	0.0167	mL/s
Ethanol	mg/dL	0.217	mmol/L
Ferritin	ng/mL	2.247	pmol/L
Glucose	mg/dL	0.0555	mmol/L
HbA1c	%	0.01	proportion of 1.0
Hemaglobin	g/dL	10	g/L
HDL cholesterol	mg/dL	0.0259	mmol/L
Iron, total	μg/dL	0.179	μmol/L
Lactate (lactic acid)	mg/dL	0.111	mmol/L
LDL cholesterol	mg/dL	0.0259	mmol/L
Leukocytes	x 10^3 cells/mm^3	1	x 10^9 cells/L
Magnesium	mg/dL	0.411	mmol/L
MCV	μm^3	1	fL
Platelets	x 10^3 cells/mm^3	1	x 10^9 cells/L
Reticulocytes	% of RBCs	0.01	proportion of 1.0
Salicylate	mg/L	0.00724	mmol/L
Testosterone	ng/dL	0.0347	nmol/L
Thyroxine (T_4)	ng/dL	12.87	pmol/L
Total Iron Binding Capacity	μg/dL	0.179	μmol/L
Triiodothyronine (T_3)	pg/dL	0.0154	pmol/L
Triglycerides	mg/dL	0.0113	mmol/L
Urea nitrogen	mg/dL	0.357	mmol/L
Uric acid	mg/dL	59.48	μmol/L

Celsius → Fahrenheit	F = (C x 1.8) + 32
Fahrenheit → Celsius	C = (F – 32) x 0.5555
Kilograms → Pounds	1 kg = 2.2 lbs
Pounds → Ounces	1 lb = 16 oz
Ounces → Grams	1 oz = 28.3 g
Inches → Centimetres	1 in = 2.54 cm

Commonly Measured Laboratory Values

Test	Conventional Units	SI Units
Arterial Blood Gases		
pH	7.35-7.45	7.35-7.45
PCO_2	35-45 mmHg	4.7-6.0 kPa
PO_2	80-105 mmHg	10.6-14 kPa
Serum Electrolytes		
Bicarbonate	22-28 mEq/L	22-28 mmol/L
Calcium	8.4-10.2 mg/dL	2.1-2.5 mmol/L
Chloride	95-106 mEq/L	95-106 mmol/L
Magnesium	1.3-2.1 mEq/L	0.65-1.05 mmol/L
Phosphate	2.7-4.5 mg/dL	0.87-1.45 mmol/L
Potassium	3.5-5.0 mEq/L	3.5-5.0 mmol/L
Sodium	136-145 mEq/L	136-145 mmol/L
Serum Nonelectrolytes		
Albumin	3.5-5.0 g/dL	35-50 g/L
ALP	35-100 U/L	35-100 U/L
ALT	8-20 U/L	8-20 U/L
Amylase	25-125 U/L	25-125 U/L
AST	8-20 U/L	8-20 U/L
Bilirubin (direct)	0-0.3 mg/dL	0-5 µmol/L
Bilirubin (total)	0.1-1.0 mg/dL	2-17 µmol/L
BUN	7-18 mg/dL	2.5-7.1 mmol/L
Cholesterol	<200 mg/dL	<5.2 mmol/L
Creatinine (female)	10-70 U/L	10-70 U/L
Creatinine (male)	25-90 U/L	25-90 U/L
Creatine Kinase – MB fraction	0-12 U/L	0-12 U/L
Ferritin (female)	12-150 ng/mL	12-150 µg/L
Ferritin (male)	15-200 ng/mL	15-200 µg/L
Glucose (fasting)	70-110 mg/dL	3.8-6.1 mmol/L
HbA1c	<6%	<0.06
LDH	100-250 U/L	100-250 U/L
Osmolality	275-300 mOsm/kg	275-300 mOsm/kg
Serum Hormones		
ACTH (0800h)	<60 pg/mL	<13.2 pmol/L
Cortisol (0800h)	5-23 µg/dL	138-635 nmol/L
Prolactin	<20 ng/mL	<20 ng/mL
Testosterone (male, free)	9-30 ng/dL	0.31-1 pmol/L
Thyroxine (T_4)	5-12 ng/dL	64-155 nmol/L
Triiodothyronine (T_3)	115-190 ng/dL	1.8-2.9 nmol/L
TSH	0.5-5 µU/mL	0.5-5 µU/mL
Hematologic Values		
ESR (female)	0-20 mm/h	0-20 mm/h
ESR (male)	0-15 mm/h	0-15 mm/h
Hemoglobin (female)	12.3-15.7 g/dL	123-157 g/L
Hemoglobin (male)	13.5-17.5 g/dL	140-174 g/L
Hematocrit (female)	36-46%	36-46%
Hematocrit (male)	41-53%	41-53%
INR	1.0-1.1	1.0-1.1
Leukocytes	4.5-11 x 10^3 cells/mm^3	4.5-11 x 10^9 cells/L
MCV	88-100 μm^3	88-100 fL
Platelets	150-400 x $10^3/mm^3$	150-400 x 10^9/L
PTT	25-35 s	25-35 s
Reticulocytes	0.5-1.5% of RBC	20-84 x 10^9/L

Ethical, Legal, and Organizational Medicine

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Acronyms ELOM2

The United States Healthcare System ELOM2
Overview of the United States Healthcare System
History
Healthcare Reform
Healthcare Expenditure and Delivery in the United States
Access to Health Services

Ethical and Legal Issues in Medicine ELOM4
Introduction to the Principles of Ethics
Confidentiality
Consent and Capacity
Negligence
Truth-Telling
Ethical Issues in Health Care
Reproductive Technologies
End-of-Life Care
Physician Competence and Professionalism
Research Ethics
Physician-Industry Relations
Resource Allocation
Conscientious Objection

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Acronyms

AE	adverse event
AHA	American Hospital Association
AMA	American Medical Association
ART	assisted reproductive technologies
GA	gestational age
HMO	Health Maintenance Organization
MAID	Medical Assistance in Dying
OECD	Organization for Economic Co-operation and Development
POA	power of attorney
SDM	surrogate decision-maker

The United States Healthcare System

Overview of the United States Healthcare System

- the US healthcare system is primarily market-based
- it is funded and delivered by a mixture of the public, private, and voluntary sectors; private-for-profit is the prevailing method of delivery
- public funding is derived from taxes raised at both the federal and state government levels

History

1901 American Medical Association established as the national organization of state and local medical groups

1929 Baylor Plan developed
- created by Dr. Justin Ford Kimball to ensure that teachers could pay their medical bills
- teachers pay 50 cents/mo in exchange for guarantee of medical services for 21 d

1930s More hospitals adopt medical insurance plans as per the Baylor Plan

1939 Community hospitals work together to create healthcare plans
- AHA uses the term “Blue Cross” to describe healthcare plans that meet their standards
- emergence of prepaid plans covering physician and surgeon services

1946 Blue Shield creates and represents physician sponsored healthcare plans, which became the official designation for AHA health care plans in 1960

1954 Social Security coverage begins to include disability benefits

1965 Medicare and Medicaid programs introduce government funded healthcare plans

1970s Emergence of HMOs

1980s HMOs offer managed care plans: healthcare packages that are provided by an HMO approved network of healthcare providers

1993 Universal healthcare system proposed but rejected by Congress

1996 *Mental Health Parity Act* passed
- invoked to decrease discrimination in healthcare coverage for mental health illnesses
- aggregate annual and lifetime limits for mental health services must match aggregate annual and lifetime limits for medical and surgical services

1996 *Health Insurance Portability and Accountability Act* passed
- Title 1: Health Care Access, Portability, and Renewability
- provides protection of healthcare coverage to employees and their families if they change or lose their job
- Title 2: Preventing Health Care Fraud and Abuse; Administrative Simplification; Medical Liability Reform
- addresses and establishes national standards for electronic healthcare transactions and security and privacy of health data

1997 State Children's Health Insurance Program (SCHIP) created
- states extend health coverage to uninsured children

1999 *Ticket to Work and Work Incentives Improvement Act* passed
- enables people with disabilities to be employed without affecting their Medicaid or Medicare coverage

2010 *Affordable Care Act* passed
- reform to healthcare to improve access to affordable health coverage and creates regulations on activities of private health insurance providers

2015 The employer mandate is applied to businesses with 50+ full-time equivalent employees (FTE) requiring them to provide health insurance to at least 95% of their FTEs and dependents up to age 26

2017 the United States House of Representatives voted to repeal the *Affordable Care Act* but the United States Senate voted against it

2020 Late March 2020, the United States became the global epicenter of the novel coronavirus, COVID-19

Healthcare Reform

- *Patient Protection and Affordable Care Act* and the *Health Care and Education Reconciliation Act* of 2010 are federal statutes signed into law in March 2010 that include a number of new healthcare provisions to be implemented over 8 yr
  - expand Medicaid eligibility, provide subsidies for insurance premiums and incentives for businesses to provide healthcare benefits, prohibit denial of coverage/claims for pre-existing conditions, and establish health insurance exchanges
  - costs are offset by a number of healthcare related taxes, including a tax penalty for citizens with no health insurance (low income persons and persons from a recognized religious sect are exempt)
  - in May 2017, under President Trump, the United States House of Representatives voted to repeal the *Affordable Care Act*, but the United States Senate voted against it

Healthcare Expenditure and Delivery in the United States

- healthcare spending in the US represents a large economic sector
  - healthcare comprises over 16.9% of the gross domestic product (GDP) (highest in the OECD), amounting to $10586 USD per capita in 2018
  - one advantage is the widespread availability of technology – the US has 4 times as many MRI machines per capita than Canada
- the US scores poorly on some indicators of population health, with a life expectancy below the OECD average and infant mortality above the OECD average; possible factors that account for this discrepancy are:
  - poor health of large uninsured population
  - high cost of healthcare administration
  - the provision of inefficient high-cost, high-intensity care
  - the higher-spending regions in the US do not provide any better quality of care, access to care, health outcomes, or satisfaction with care when compared to the lower-spending regions
- the US has the highest level of obesity of all OECD nations at 34.3%; this has major implications for future healthcare spending

Healthcare Funding

- over 60% of healthcare provisions and spending come from universal programs such as Medicare, Medicaid, TRICARE, the Children's Health Insurance Program, and the Veterans Health Administration
- based on the total expenditure on healthcare, 32.7% goes to hospital care, 19.9% goes to physicians/clinical services, 9.5% to pharmaceuticals, 3.7% to dental, 4.8% to nursing homes, 2.8% to home healthcare, 2.5% for government public health activities, 1.3% to government administrative costs, and 4.8% to investment (research and "structures and equipment"), among other expenses

Healthcare Delivery

- healthcare facilities are largely operated by the private sector
- it is estimated that approximately 62% of hospitals are non-profit, 20% are government owned, and 18% are for-profit

Access to Health Services

Table 1. Medicare and Medicaid Program Information

	Medicare	Medicaid
Eligibility	>65 yr People with end stage renal disease People of any age meeting the Medicare definition of disability	People who receive funds through social assistance programs Pregnant women People with developmental disabilities Low-income children through the 1997 State Children's Health Insurance Program
Coverage	Basic "Part A" providing inpatient hospital care, home care, limited skilled nursing facility care, and hospice care Supplemental "Part B" covers outpatient physician and clinic services, and requires payment of a further monthly fee	Basic coverage involves inpatient and outpatient hospital care, laboratory and x-ray services, skilled nursing care, home care, physician services, dental services, and family planning Financing for Medicaid is provided jointly by the federal and state governments, and program details vary greatly between states
Co-Payment	To help pay for out-of-pocket expenditures, and to cover many of the services not insured by Medicare, the majority of Medicare beneficiaries buy supplemental private health insurance	States may impose deductibles, coinsurance, or co-payments on some Medicaid recipients for certain services Medicaid is not health insurance – coverage is unreliable as improvement in an individual's financial status can lead to a loss of Medicaid eligibility

Source: Centers for Medicare and Medicaid Services. Available from http://www.cms.gov

- 70% of Americans under the age of 65 have private health insurance, either employer-sponsored or individually purchased; 12% receive health care through public health insurance; 18%, mainly individuals of lower socioeconomic status, have no health insurance
- access to publicly funded health services occurs primarily through two programs, Medicare and Medicaid, which were created by the 1965 *Social Security Act*
- other federal government-funded health programs include the Military Health Services System, the Veterans Affairs Health Services System, the Indian Health Service, and the Prison Health Service

Ethical and Legal Issues in Medicine

Introduction to the Principles of Ethics

- ethics address
  1. principles and values that help define what is morally permissible or not
  2. rights, duties, and obligations of individuals and groups
     - the practice of medicine assumes there is one code of professional ethics for all doctors and that they will be held accountable by that code and its implications

Autonomy vs. Competence vs. Capacity
Autonomy: the right that patients have to make decisions according to their individual wishes, beliefs and preferences
Competence: the ability to make a specific decision for oneself as determined legally by the courts
Capacity: the ability to make a specific decision for oneself as determined by treatment-proposing clinicians

Table 2. The Four Principles of Medical Ethics

Principle	Definition
Autonomy	Recognizes an individual's right and ability to make their own decisions based on their wishes, beliefs, and values It may not be possible for a person to make a fully autonomous decision and/or to have an autonomous decision honored in some circumstances. For instance, if an autonomous request for a medical intervention is deemed clinically inappropriate from the physician's perspective, then the physician need not offer it (though they may offer it based on other reasons and depending on the context) Autonomy is not synonymous with capacity Not applicable in situations where informed consent and choice are not possible or may not be appropriate
Beneficence	The patient-based 'best interests' standard that combines doing good, avoiding harm, considering the patient's values, beliefs, and preferences (so far as these are known) Autonomy should be integrated with the physician's conception of a patient's medically-defined best interests The aim is to minimize harmful outcomes and maximize beneficial ones Paramount in situations where consent/choice is not possible or may not be appropriate
Non-Maleficence	Obligation to avoid causing harm: primum non nocere ("first, do no harm") A limit condition of the Beneficence principle
Justice	Fair distribution of benefits and harms within a community Concept of fairness: Is the patient receiving what they deserve – their fair share? Are they treated the same as equally situated patients? (equity) How do one set of treatment decisions impact on others? (equality) Respects basic human rights, such as freedom from persecution and the right to have one's interests considered and respected Equality and Eequity are different notions of justice. Equality is distribution of resources to all irrespective of needs, and equity is distribution of resources based on unique needs. These concepts raise different considerations

Note: The four principles approach (i.e. principlism) is just one approach to medical ethics. There exist many other ethical principles that are also relevant to medicine (e.g. transparency, trust, etc.)

- **the AMA has a Code of Medical Ethics**
  - articulates the values of medicine as a profession and defines medicine's integrity
  - source of the profession's authority to self-regulate
  - evolving document that changes as new questions arise; AMA policy positions ("AMA Policy") address current healthcare issues, the healthcare system, internal organizational structure, decision-making processes, and medical science and technology

Confidentiality

Overview of Confidentiality

- when determining legal and ethical issues surrounding patient information, start from the foundational assumption that all information given by the patient is both confidential (meaning it cannot be disclosed to others) and privileged (meaning it cannot be used in court), then determine whether exceptions to this exist
- the legal and ethical basis for maintaining confidentiality is that a full and open exchange of information between patient and physician is central to the development and maintenance of a therapeutic relationship
- privacy is the right of patients (which they may forego), while confidentiality is the duty of physicians (which they must respect barring patient consent or the requirements of the law)
- if inappropriately breached by a physicians, they can be sanctioned by the hospital, court, or regulatory authority
- based on the ethical principle of patient autonomy, patients have the right to the following:
  - control of their own information
  - the expectation that personal health information will be properly protected from unauthorized access (see *Privacy of Medical Records*, ELOM5)
  - confidentiality may be ethically and legally breached in certain circumstances (i.e. the threat of harm to others)
  - while physician-patient privilege exists, it is limited in comparison to solicitor-client privilege. During conversations with patients about confidentiality, physicians should avoid promising absolute confidentiality or privilege, as it cannot be guaranteed by law
  - physicians failing to abide by such regulations could be subject to professional or civil actions

Reports of possible cases of violence should include information pertaining to the threat, the situation, the physician's opinion, and the information upon which it is based

Statutory Reporting Obligations

- legislation has defined specific instances where public interest overrides the patient's right to confidentiality. These vary by state, but often include the following:
  1. suspected child or elder abuse or neglect – report to local child welfare authorities
  2. fitness to drive a vehicle or fly an airplane – report to Department of Motor Vehicles
  3. communicable diseases – report to public health authority and identifiable people at risk
  4. improper conduct of other physicians or health professionals – report to College or regulatory body of the health professional
  5. gunshot and knife wounds – notify police
  6. vital statistics must be reported; reporting varies by jurisdiction
- physicians who fail to report in these situations in the manner prescribed by state jurisdiction are subject to prosecution and penalty, and may be liable if a third party has been harmed

Reasons to Breach Confidentiality
- Child abuse
- Fitness to drive
- Communicable disease
- Coroner report
- Duty to inform/warn (e.g. alerting authorities if there is an imminent risk of patient hurting themselves or others)

Duty to Protect/Warn

- the physician has a duty to protect the public from a known (or potential) dangerous patient; this may involve taking appropriate clinical action (e.g. involuntary detainment of violent patients for clinical assessment), informing the police, and/or warning the potential victim(s) if a patient expresses an intent to harm
- first established by a Supreme Court of California decision in 1976; known as the Tarasoff decision
- concerns of breaching confidentiality should not prevent the physician from exercising the duty to protect; however, the disclosed information should not exceed that required to protect others
- applies in a situation where:
  1. there is an imminent risk
  2. to an identifiable person or group
  3. of serious bodily harm or death

Physicians should seek advice from their local health authority or the AMA before disclosing the status of a patient to someone else

When confidentiality is breached in the interest of public welfare, the minimum relevant information should be disclosed, and the number of persons privy to the information should be kept at a minimum

Disclosure for Legal Proceedings

- disclosure of health records can be compelled by a court order, warrant, or subpoena

Privacy of Medical Records

- privacy of health information is protected by professional codes of ethics, legislation, and the physician's fiduciary duty
- the legal duties of physicians involving patient confidentiality of medical records are outlined in the *Health Insurance Portability and Accountability Act* (HIPPA), which establishes principles for the collection, use, and disclosure of information that is part of commercial activity (i.e. physician practices, pharmacies, private labs)
- other aspects involving confidentiality are governed by state policy

Duties of Physicians with Regards to the Privacy of Health Information

- inform patients of information-handling practices through various means (i.e. posting notices, brochures and pamphlets, and/or through discussions with patients)
- obtain the patient's expressed consent to disclose information to third parties
  - physicians have a professional obligation to facilitate timely transmission of the patient's medical record to third parties (with the patient's consent), such as for insurance claims. Failure to do so has resulted in sanctions by regulatory bodies
  - while patient's have a right of access to their medical records, physicians can charge a "reasonable fee" commensurate with the time and material used in providing copies/access
- provide the patient with access to their entire medical record; exceptions include instances where there is potential for serious harm to the patient or a third party
- provide secure storage of information and implement measures to limit access to patient records
- ensure proper destruction of information that is no longer necessary
- regarding taking pictures or videos of patients, findings, or procedures, in addition to patient consent and privacy laws, trespassing laws apply in some states

Consent and Capacity

Ethical Principles Underlying Consent and Capacity

- consent is the autonomous authorization of a medical intervention by a patient
- usually, the principle of respect for patient autonomy must be balanced with the principle of beneficence since a physician need not offer an intervention that does not serve some benefit based on their clinical judgment
- If a patient is deemed incapable of consenting to a proposed medical intervention, then it is the duty of the SDM (or the physician in an emergency) to act on the patient's known prior wishes or, failing that, to act in the patient's best interests
- there is a duty to discover, if possible, what the patient would have wanted when capable
- central to determining best interests is understanding the patient's values, beliefs, and interpretation of their cultural or religious background
- more recently expressed wishes take priority over remote ones
- patient wishes may be expressed verbally or in written form
- patients found incapable to make a specific decision should still be involved in that decision as much as possible; if a patient found incapable expresses a willingness to pursue the proposed treatment/intervention, then this is known as assent (rather than 'consent', which requires capacity)
- agreement or disagreement with medical advice does not determine findings of capacity/incapacity
- however, patients opting for care that puts them at risk of serious harm that most people would want to avoid should have their capacity carefully assessed. Steer clear from tendency to define what reasonable personal standards may be. If appropriate, look to discern patterns of justification offered by patients and how they interpret their values, beliefs, culture, and/or religion

Four Basic Requirements of Valid Consent

1. Voluntary
- consent must be given free of coercion or pressure (e.g. from family members who might exert 'undue influence,' from members of the clinical team)
- the physician must not deliberately mislead the patient about the proposed treatment

2. Capable
- the patient must be able to understand and appreciate the nature and effect of their condition as well as the proposed treatment or decision

3. Specific
- the consent provided is specific to the procedure being proposed and to the provider who will carry out the procedure (the patient must be informed if students will be involved in providing the treatment)

4. Informed
- sufficient information and time must be provided to allow the patient to make choices in accordance with their wishes; information should include:
  - the nature of the treatment or investigation proposed and its expected effects
  - all significant risks and special or unusual risks
  - alternative treatments or investigations and their anticipated effects and significant risks
  - the consequences of declining treatment
  - risks that are common sense need not be disclosed (e.g. bruising after venipuncture)
  - answers to any questions the patient may have
  - the reasonable person test – the physician must provide all information that would be needed "by a reasonable person in the patient's position" to be able to make a decision
  - disclose common adverse events and all serious risks (e.g. death) even if remote
  - it is the physician's responsibility to make reasonable attempts to ensure that the patient understands the information
  - physicians have a duty to inform the patient of all legitimate therapeutic options and must not withhold information based on personal conscience (e.g. not discussing the option of emergency contraception)

Major Exceptions to Consent
- Emergencies
- Communicable diseases
- Mental health legislation

Obtaining Legal Consent

- consent of the patient must be obtained before any medical intervention is provided; consent can be:
  - verbal or written, although written is usually preferred
  - a signed consent form is only evidence of consent – it does not replace the process for obtaining valid consent
  - what matters is what the patient understands and appreciates, not what the signed consent form states
  - implied (e.g. a patient holding out their arm for an immunization) or expressed
- consent is an ongoing process and can be withdrawn or changed after it is given, unless stopping a procedure would put the patient at risk of serious harm

Exceptions to Consent

1. Emergencies
  - treatment can be provided without consent where a patient is experiencing severe suffering, or where a delay in treatment would lead to serious harm or death and consent cannot be obtained from the patient or their SDM
  - emergency treatment should not violate a prior expressed wish of the patient (e.g. a signed Jehovah's Witness card)
  - if a patient is incapable, physicians must document reasons for incapacity and why situation is emergent
  - patients have a right to challenge a finding of incapacity as it removes their decision-making ability
  - if a SDM is not available, physicians can treat without consent until the SDM is available or the situation is no longer emergent

2. Legislation
  - mental health legislation allowing for involuntary commitment is state governed. In general, an individual may be detained if they pose a threat to themself or others
  - public health legislation allows medical officers of health to detain, examine, and treat patients without their consent (e.g. a patient with TB refusing to take medication) to prevent transmission of communicable diseases

3. Special Situations
  - public health emergencies (e.g. an epidemic or communicable disease treatment)
  - warrant for information by police

Consequences of Failure to Obtain Valid Consent

- treatment without consent is battery (an offense in tort), even if the treatment is life-saving (excluding situations outlined in exceptions section above)
- treatment of a patient on the basis of poorly informed consent may constitute negligence, also an offense in tort
- the onus of proof that valid consent was not obtained rests with the plaintiff (usually the patient)

Consent

- treatment without consent = battery, including if NO consent or if WRONG procedure
- treatment with poor or invalid consent = negligence

Overview of Capacity

- capacity is the ability to:
  - understand information relevant to a treatment decision
  - appreciate the reasonably foreseeable consequences of a decision or lack of a decision
- capacity is specific for each decision (e.g. a person may be capable to consent to having a CXR, but not for a bronchoscopy)
- capacity can change over time (e.g. temporary incapacity secondary to delirium)
- a person is presumed capable unless there is good evidence to the contrary
- capable patients are entitled to make their own decisions
- capable patients can refuse treatment even if it leads to serious harm or death; however, decisions that put patients at risk of serious harm or death require careful scrutiny

Assessment of Capacity

- capacity assessments must be conducted by the treating clinician who is part of a regulated health profession and, if appropriate, in consultation with other healthcare professionals
- clinical capacity assessment may include:
  - specific capacity assessment (i.e. capacity specific to the decision at hand)
    1. effective disclosure of information and evaluation of patient's reason for decision
    2. understanding of:
       - the condition
       - the nature of the proposed treatment
       - alternatives to the treatment
       - the consequences of accepting and rejecting the treatment
       - the risks and benefits of the various options
    3. for the appreciation needed for decision making capacity, a person must:
       - acknowledge the symptoms that affect them
       - be able to assess how the various options would affect them
       - be able to reach a decision, and make a choice, not based primarily upon delusional belief (test: are their beliefs responsive to evidence?)

Aid to Capacity Evaluation
- Ability to understand the medical problem
- Ability to understand the proposed treatment
- Ability to understand the alternatives (if any) to the proposed treatment
- Ability to understand the option of refusing treatment or of it being withheld or withdrawn
- Ability to appreciate the reasonably foreseeable consequences of accepting the proposed treatment
- Ability to appreciate the reasonably foreseeable consequences of refusing the proposed treatment
- Ability to make a decision that is not substantially based on delusions or depression

Adapted from Etchells, et al. 1996

- general impressions
- input from psychiatrists, neurologists, etc. for any underlying mental health or neurological condition that may affect insight or decision-making
- employ "Aid to Capacity Evaluation"
    - a decision of incapacity may warrant further assessment by psychiatrist(s) or the courts

Treatment of the Incapable Patient in a Non-Emergent Situation

- obtain informed consent from SDM
- criteria for detaining a patient against their will to receive treatment are state specific. In most circumstances, the physician must:
    - document assessment by psychiatrist or other qualified agent in chart
    - notify patient and agent verbally or in writing of assessment
    - if the patient objects to the determination, healthcare professionals cannot override the patient's wishes without obtaining a court order

Patients may make the autonomous decision to delegate their decision-making authority to someone else (e.g. a family member)
Alternatively, patients may choose to exercise relational autonomy, a conception of self-determination where decisions influence and are influenced by one's relationships, social supports, and/or supported decision-making (i.e. a type of decision-making where the patient makes the decision but receives support from others)

Surrogate Decision-Makers (SDM)

- SDMs are appointed if no living will or POA exists and must adhere the following principles when giving informed consent:
    - act in accordance with any previously expressed wishes that were expressed when capable
    - if wishes unknown, act in the patient's best interest, taking into account:
        1. values and beliefs held by the patient while capable
        2. whether well-being is likely to improve with vs. without treatment
        3. whether the expected benefit(s) outweighs the risk of harm
        4. whether a less intrusive treatment would be as beneficial as the one proposed
    - the final decision of the SDM may and should be challenged by the physician if the physician believes the SDM is not abiding by the above principles

When disagreements occur, institutional policies for timely conflict resolution should be followed, and may be followed by consultation with an ethics committee, pastoral service, or other counseling resource; resolution of disagreements in the courts should be pursued only as a last resort

Instructional Advance Directives

- allow patients to exert control over their care once they are no longer capable
- communicates their decisions about future health care, including who they would allow to make treatment decisions on their behalf and what types of interventions they would/would not want
- patients should be encouraged to review these documents with their family and physicians and to reevaluate them often to ensure they reflect their current wishes

POWERS OF ATTORNEY

- all Guardians and Attorneys have fiduciary duties for the dependent person

Definitions

- **Medical Power of Attorney**
    - a legal document in which one person gives another the authority to make personal care decisions (health care, nutrition, shelter, clothing, hygiene, and safety) on their behalf if they become mentally incapable
- **Guardian of the Person**
    - someone who is appointed by the court to make decisions on behalf of an incapable person in some or all areas of personal care, in the absence of a POA for personal care
- **Continuing Power of Attorney for Property**
    - a legal document in which a person gives another the legal authority to make decisions about their finances if they become unable to make those decisions
- **Guardian of Property**
    - someone who is appointed by the Public Guardian and Trustee or the courts to look after an incapable person's property or finances
- **Public Guardian and Trustee**
    - acts as a SDM of last resort on behalf of mentally incapable people who do not have another individual to act on their behalf
- **Pediatric Aspects of Capacity**
    - age of consent is state specific
    - physicians treating pediatric patients generally must obtain informed consent from a parent or a legal guardian
    - emancipated or mature minors may provide consent to their own medical care
    - infants and children are assumed to lack mature decision-making capacity for consent but they should still be involved in decision-making processes (i.e. be provided with information appropriate to their comprehension level)
    - adolescents are usually treated as adults
    - preferably, assent should still be obtained from patient, even if not capable of giving consent
    - in the event that the physician believes the SDM is not acting in the child's best interest, an appeal must be made to the local child welfare authorities
    - under normal circumstances, parents have right of access to the child's medical record

Negligence

Ethical Basis

- the doctor-patient relationship is primarily based on trust, which is recognized in the concept of fiduciary duty, the responsibility to act in the patient's best interest
- negligence or malpractice is a form of failure on the part of the physician in fulfilling their fiduciary duty in providing appropriate care and leading to harm of the patient (and/or abuse of patient's trust)

A fiduciary duty is a legal duty to act solely in another party's interest and may not profit from relationships with principals unless they have the principal's express consent

Legal Basis

- physicians are legally liable to their patients for causing harm (tort) through a failure to meet the standard of care applicable under the circumstances
- standard/duty of care is defined as one that would reasonably be expected under similar circumstances of an ordinary, prudent physician of the same training, experience, specialization, and standing
- liability arises from physician's common law duty of care to their patients in the doctor/patient relationship
- action(s) in negligence (or civil liability) against a physician must be launched by a patient within a specific prescribed period required by the respective state in which the actions occurred

Four Basic Elements for Action Against a Physician to Succeed in Negligence/ Malpractice

1. A duty of care owed to the patient (doctor/patient relationship must be established)
2. A breach of the duty of care
3. Some harm or injury to the patient
4. The harm or injury must have been caused by the breach of the duty of care

Truth-Telling

Ethical Basis

- helps to promote and maintain a trusting physician-patient relationship
- patients have a right to be told important information that physicians have regarding their care
- enables patients to make informed and autonomous decisions about health care and their lives

Open Disclosure of AEs: Transparency and Safety in Health Care

Surg Clin North Am 2012;92(1):63-77

Health care providers have a fiduciary duty to disclose adverse events to their patients. Professional societies codify medical providers' ethical requirement to disclose adverse events to patients in accordance with the four principles of biomedical ethics. Transparency and honesty in relationships with patients create opportunities for learning that lead to systems improvements in health care organizations. Disclosure invariably becomes a component of broad systems improvement and is closely linked to improving patient safety.

Legal Basis

- required for valid patient consent (see *Consent and Capacity*, ELOM6)
  - goal is to disclose information that a reasonable person in the patient's position would need in order to make an informed decision ("standard of disclosure")
- withholding information can be a breach of fiduciary duty and duty of care
- obtaining consent based on misleading and/or insufficient information can be seen as negligent

Evidence about Truth-Telling

- it is a patient's right to have the option of knowing about any clinical condition(s)/diagnoses that they may have
- most patients want to be provided with information regarding their health
- although some patients may want to protect family members from bad news regarding their family members' care, they themselves would want to be informed in the same situation
- truth-telling improves trust, adherence, and health outcomes
- informed patients are more satisfied with their care
- negative consequences of truth-telling can include decreased emotional well-being, anxiety, worry, social stigmatization, and loss of insurability

Adverse Event

An unintended injury or complication from health care management resulting in disability, death, or prolonged hospital stay

Medical Error

- medical error may be defined as 'preventable adverse events' caused by the patient's medical care and not the patient's underlying illness. Some errors may be identified before they harm the patient, so not all error is truly 'adverse'
  - serious adverse events (i.e. those resulting in death, hospitalization, or medical or surgical intervention) must be reported to the Food and Drug Administration (FDA)
- many jurisdictions and professional associations expect and require physicians to disclose medical error; that is, any event that harms or threatens to harm patients must be disclosed to the patient or the patient's decision-maker(s) and reported to the appropriate health authorities
- physicians must disclose to patients the occurrence of adverse events or medical errors caused by medical management, but should not suggest that they resulted from negligence because:
  - negligence is a legal determination
  - error is not equal to negligence
- disclosure allows the injured patient to seek appropriate corrective treatment promptly, if possible
  - physicians should avoid simple attributions as to cause and sole responsibility of others or oneself
  - physicians should offer apologies or empathic expressions of regret ("I wish things had turned out differently") as these may help to maintain and/or to rebuild trust and are not admissions of guilt or liability

Breaking Bad News: The Patient's Viewpoint

Health Commun 2011;26(7):649-655

Purpose: To assess how patients perceive physician's communication of bad news.

Methods: Forty eight vignettes of bad news were created based of five factors level of bad news (infection with hepatitis C, cirrhosis of the liver, or liver cancer); request or not to the patient to come with spouse or partner; attempt or not by the physician to find out the patient's expectations about the test results; presence or absence of emotional supportiveness; and provision or not of complete and understandable information. 245 adults who had previously received bad medical news were asked to rank the vignettes for acceptability of physician conduct.

Results: Quality of information and emotional supportiveness were identified as key factors in acceptability of physician conduct. How bad the news was had no impact on how patients perceived physician conduct. Importantly, both high levels of information and emotional supportiveness were appreciated by patients and the presence of one of these factors could not compensate for the absence of the other.

Breaking Bad News

- 'bad news' may be any information that reveals conditions or illnesses threatening the patient's sense of well-being. Different patients may classify 'bad news' in different ways
- caution patients in advance of serious tests about the possibility of bad findings
- give warnings of impending bad news and make sure you provide time for the patient, and allow patient to decide if they want another member of family or kin to hear and convey news for them
- disclosing medical information in a poor or insensitive manner may be as harmful as non-disclosure
- truth-telling may be a process requiring multiple visits
- adequate support should be provided along with the disclosure of difficult news

- **SPIKES** protocol was developed to facilitate "breaking bad news"
  - **S**ETTING and LISTENING SKILL
  - Patient **P**ERCEPTIONS of condition and seriousness
  - **I**NVITATION from patient to receive information
  - **K**NOWLEDGE - provide medical facts
  - Explore **E**MOTIONS and **E**MPATHIZE
  - **S**TRATEGY and SUMMARY

Arguments Against Truth-Telling

- may go against certain cultural norms and expectations
- may lead to patient harm, but only in extreme, rare situations
- medical uncertainty may result in the disclosure of uncertain or inaccurate information

Exceptions to Truth-Telling

- patients may 'waive' the right to know: patient declines to receive information that would normally be disclosed
- a patient may waive their right to know the truth about their situation when:
  - the patient clearly declines to be informed
  - a strong cultural component exists that should be respected and acknowledged
  - the patient may wish for others to be informed and to make the relevant medical decision(s) for them
- the more weight of the consequences for the patient from non-disclosure, the more carefully one must consider the right to ignorance
- 'emergencies': an urgent need to treat may legitimately delay full disclosure to the patient and/or the SDM; the presumption is that most people would want such treatment
- 'therapeutic privilege'
  - withholding information by the clinician in the belief that disclosure of the information would itself lead to severe anxiety, psychological distress, or physical harm to the patient
  - clinicians should avoid invoking therapeutic privilege due to its paternalistic overtones; it is a defense of non-disclosure that is rarely accepted anymore
  - it is often not the truth that is unpalatable; it is how it is conveyed that can harm the patient

Ethical Issues in Health Care

Managing Controversial and Ethical Issues in Practice

- discuss the issue(s) in a manner that is as objective and non-judgmental as possible
- ensure patients have full access to relevant and necessary information to make informed decisions about their care
- identify if any options are outside of the physician's moral boundaries (e.g. something to which the physician has a conscientious objection) and refer to another physician if appropriate
- consult with a bioethicist and/or the appropriate ethics committees or boards
- protect freedom of moral choice for students or trainees

Reproductive Technologies

Overview of the Maternal-Fetal Relationship

- in general, maternal and fetal interests align; however, when there's conflict, maternal health takes precedence over fetal health
- in some situations, a conflict between maternal autonomy and the best interests of the fetus may arise
- law recognizes gestating individual's inalienable rights; does not recognize fetal rights
- in general, fetus does not have legal rights until born alive and completely delivered from person's body (may vary by state)

Ethical Issues and Arguments

- principle of reproductive freedom: gestating individuals have the right to make their own reproductive choices
- coercion of a gestating individual to accept efforts to promote fetal well-being is an unacceptable infringement of their personal autonomy

Legal Issues and Arguments

- the law protects a gestating individual's right to life, liberty, and security of person and does not recognize fetal rights; key aspects of the mother's rights include:
  - if a gestating individual is competent and refuses medical advice, their decision must be respected even if the fetus will suffer
  - the fetus does not have legal rights until it is born alive and with complete delivery from the body of the gestating individual

Protocol to Break Bad News: SPIKES
S **Setting** the scene and listening skills
P **Patient's** perception of condition and seriousness
I **Invitation** from patient to give information
K **Knowledge**: giving medical facts
E **Explore** emotions and empathize
S **Strategy** and summary
Source: Baile WF, Buckman R. 2000

Truth-Telling in Discussing Prognosis in Advanced Life-Limiting Illnesses
Palliat Med 2007;21(6):507-517
Many physicians express discomfort at having to broach the topic of prognosis, including limited life expectancy, and may withhold information or not disclose prognosis. A systematic review of 46 studies relating to truth-telling in discussing prognosis with patients with progressive, advanced life-limiting illnesses, and their caregivers showed that although the majority of physicians believed that patients and caregivers should be told the truth about the prognosis, in practice, many either avoid discussing the topic or withhold information. Reasons include perceived lack of training, stress, no time to attend to the patient's emotional needs, fear of a negative impact on the patient, uncertainty about prognostication, requests from family members to withhold information, a feeling of inadequacy, or hopelessness regarding the unavailability of further curative treatment. Evidence suggests that patients can discuss the topic without it having a negative impact on them.

Truth-Telling in the Setting of Cultural Differences and Incurable Pediatric Illness: A Review of Prognosis in Advanced Life-Limiting Illnesses
JAMA Pediatr 2017;171(11):1113-1119
It is sometimes ethically permissible to defer to family values regarding nondisclosure, but such deferral is not unique to cultural differences. Early setting of expectations and boundaries, as well as ongoing exploration of family and health care professional concerns, may mitigate conflict.

The fetus does not have legal rights until it is born alive and with complete delivery from the body of the woman

Once outside the mother's body, the neonate becomes a member of society with all the rights and protections other vulnerable persons receive
Pediatr Child Health 2012;17(8):443-444
- Non-treatment of a neonate born alive is only acceptable if <22 wk GA
- 23-25 wk GA: treatment should be a consensual decision between physician and parents
- 25 wk GA and more: neonate should receive full treatment unless major anomalies or conditions incompatible with life are present

Assisted Reproductive Therapies

- includes non-coital insemination, hormonal ovarian stimulation, and in vitro fertilization (IVF)
- topics with ethical concerns surrounding assisted reproductive therapies (ART):
  - donor anonymity vs. child-centered reproduction (i.e. knowledge about genetic medical history)
  - preimplantation genetic testing for diagnosis before pregnancy
  - use of new techniques without patients appreciating their experimental nature
  - access to ART
  - private vs. public funding of ART
  - social factors limiting access to ART (e.g. same-sex couples, trans persons)
  - the 'commercialization' of reproduction

Fetal Tissue

- pluripotent stem cells can currently be derived from human embryonic and fetal tissue
- potential uses of stem cells in research:
  - studying human development and factors that direct cell specialization
  - evaluating drugs for efficacy and safety in human models
  - cell therapy: using stem cells grown in vitro to repair or replace degenerated/destroyed/malignant tissues (e.g. Parkinson's disease)
  - genetic treatment aimed at altering somatic cells (e.g. myocardial or immunological cells) is acceptable and ongoing

Advanced Reproductive Therapies: Ethically Appropriate Actions

- educate patients and address contributors to infertility (e.g. stress, alcohol, medications, etc.)
- investigate and treat underlying health problems causing infertility
- wait at least 1 yr before initiating treatment with ART (exceptions – advanced age or specific indicators of infertility)
- educate and prepare patients for potential negative outcomes of ART so that they can make informed and autonomous decisions about how to proceed

AMA Principles of Medical Ethics do not prohibit a physician from performing an abortion in accordance with good medical practice and under circumstances that do not violate the law. Physicians should inform themselves of state laws surrounding the topic of abortions

Induced Abortion

- induced abortion: the active termination of a pregnancy before fetal viability
- fetal viability: fetus >500 g or >20 wk gestational age
- availability of and limits on abortion providers vary by state

Prenatal/Antenatal Genetic Testing

- uses:
  - to confirm a clinical diagnosis
  - to detect genetic predisposition to a disease
  - allows preventative steps to be taken and helps patient prepare for the future
  - gives parents the option to terminate a pregnancy or begin early treatment
- ethical dilemmas arise because of the sensitive nature of genetic information. Important considerations of genetic testing include:
  - the individual and familial implications
  - its pertaining to future disease
  - its ability to identify disorders for which there are no effective treatments or preventive steps
  - its ability to identify the sex of the fetus
- ethical issues and arguments regarding the use of prenatal/antenatal genetic testing include:
  - difficulty obtaining informed consent due to the complexity of genetic information
  - doctor's duty to maintain confidentiality vs. duty to warn family members
  - risk of social discrimination (e.g. insurance) and psychological harm
- legal aspects:
  - testing requires informed consent
  - no standard of care exists for clinical genetics but physicians are legally obligated to inform patients that prenatal testing exists and is available
  - where a genetic defect is found in the fetus, prospective parents may request or refuse an abortion
  - a physician is required to alert prospective parents when a potential genetic problem exists

Genetic Testing: Ethically Appropriate Actions

- thorough discussion and realistic planning with patient before testing is done
- genetic counseling for delivery of complex information

End-of-Life Care

Overview of Palliative and End-of-Life Care

- focus of care is comfort and respect for person nearing death and maximizing quality of life for patient, family, and loved ones
  - palliative care is an approach that improves the quality of life of patients facing life-threatening illness, through the prevention and relief of suffering, including treating pain, physical, psychosocial, and social concerns
- appropriate for any patient at any stage of a life-threatening illness
- may occur in a hospital, hospice, in the community, or at home
- often involves an interdisciplinary team of caregivers
- addresses the medical, psychosocial, and spiritual dimensions of care

Know the Difference
Palliative care is an approach designed to ease symptoms and improve quality of life for a duration of a person's life, not merely end-of-life care, but does not act to hasten death
Assisted suicide or medical assistance in dying (MAID): where legally permitted, fits into philosophy of practice for palliative care
MAID laws vary by state
Many palliative care physicians legally incorporate MAID into their practice though some may conscientiously object
Palliative care assists patients who are dying, but unlike euthanasia or physician-assisted suicide, it does not aim directly at or intend to end the person's life[1]

Euthanasia and Medical Assistance in Dying

- euthanasia: knowingly and intentionally performing an act, with or without consent, that is explicitly intended to end another person's life where that person has an incurable illness
- medical assistance in dying (MAID): the administering or prescribing for self-administration, by a medical practitioner or nurse practitioner, of a substance, at the request of a person, that causes their death
  - 8 US states (California, Colorado, Hawaii, Maine, New Jersey, Oregon, Vermont, and Washington) and the District of Columbia have death with dignity statutes
  - as of early 2020, Montana does not have a law safeguarding MAID but the Montana Supreme Court ruled in 2009 that there was no state law prohibiting it
  - patient must be a mentally competent adult, diagnosed with a terminal illness, and capable of self-administering the medications without assistance
  - palliative sedation: the use of sedative medications for patients that are terminally ill to relieve suffering and manage symptoms. Though the intent is not to hasten death, this may be a foreseeable consequence
  - withdrawing or withholding life sustaining interventions (e.g. artificial ventilation or nutrition) that are keeping the patient alive but no longer wanted or indicated

Common Ethical Arguments

- criminally prohibiting medical assistance in dying may influence some individuals to end their own lives and/or endure intolerable suffering until natural death occurs
  - in the *Carter v Canada* case, the Supreme Court of Canada rejected this argument as it would mean people would be subjected to intolerable suffering for the sake of potential care to others
- patient has right to make autonomous choices about the time of own death
- belief that there is no ethical difference between the acts of euthanasia/assisted suicide and forgoing life-sustaining treatments
- belief that these acts benefit terminally ill patients by relieving suffering
- the belief that patient autonomy has limits and that one cannot and/or should not be allowed to make an autonomous request to end one's life
- death should be the consequence of the morally justified withdrawal of life-sustaining treatments only in cases where there is a fatal underlying condition, and it is the condition (not the withdrawal of treatment) that causes death

MAID: Ethically Appropriate Actions
- Respect capable decisions to forgo available treatment options and/or palliative care options
- Provide appropriate palliative measures with patient consent
- Try to assess reasons for MAID requests to see if there are 'reversible factors' that are directly influencing one's desire to receive MAID (e.g. depression, pain, loneliness, anxiety) that can be treated

Legal Aspects

- in the US, euthanasia is considered an illegal act
- however, physician-assisted death is currently legal in the District of Columbia and the states of Pennsylvania, California, Colorado, District of Columbia, Oregon, Vermont, Washington, and Hawaii (2019)

Acceptable Use of Palliative and End-of-Life Care

- the use of palliative sedation with opioids in end-of-life care, knowing that death may occur as an unintended consequence (principle of double effect) is distinguished from euthanasia and assisted suicide where death is the primary intent
- the appropriate withdrawal of life-support is distinguished from euthanasia and assisted suicide as it is seen as allowing the underlying disease to take its 'natural course'
- refusals of care by the patient that may lead to death ought to be carefully explored by the physician to rule out any 'reversible factors' (poor palliation, depression, poverty, ill-education, isolation) that may be hindering authentic choice

Physician Responsibilities Regarding Death

- physicians are required by law to complete a medical certificate of death unless the coroner needs notification; failure to report death is a criminal offence
- coroner investigates these deaths, as well as deaths that occur in psychiatric institutions, jails, foster homes, nursing homes, hospitals to which a person was transferred from a facility, institution or home, etc.
- in consultation with forensic pathologists and other specialists, the coroner establishes:
  - the identity of the deceased
  - where and when the death occurred

Notify coroner if death occurs due to:
- Violence, negligence, misconduct
- Pregnancy
- Sudden or unexpected causes
- Disease not treated
- Cause other than disease
- Suspicious circumstances