

**Texas Tech University Health Sciences Center
School of Medicine**

USMLE Step 1 Topic Outline

Table of Contents

Topic Number	Topic Description	Page
1.	General Principles	1
1.1.	Biochemistry and molecular biology	1
1.2.	Biology of cells	2
1.3.	Human development and genetics	3
1.4.	Biology of tissues and their responses to disease	4
1.5.	Psychosocial, cultural, occupational, and environmental influences on behavior, health, and disease processes	5
1.6.	Multisystem processes	7
1.7.	Pharmacodynamic and pharmacokinetic processes	8
1.8.	Microbial biology and infection	8
1.9.	immune responses	10
1.10.	Quantitative methods	11
2.	Hematopoietic and Lymphoreticular Systems	11
2.1.	Normal processes	11
2.2.	Abnormal processes	12
2.3.	Principles of therapeutics	13
2.4.	Psychosocial, cultural, occupational, and environmental considerations	13
3.	Central and Peripheral Nervous Systems	14
3.1.	Normal processes	14
3.2.	Abnormal processes	15
3.3.	Principles of therapeutics	16
3.4.	Psychosocial, cultural, occupational, and environmental considerations	17
4.	Skin and Related Connective Tissue	18
4.1.	Normal processes	18
4.2.	Abnormal processes	18
4.3.	Principles of therapeutics	19
4.4.	Psychosocial, cultural, occupational, and environmental considerations	19

Topic Number	Topic Description	Page
5.	Musculoskeletal System	19
5.1.	Normal processes	19
5.2.	Abnormal processes	19
5.3.	Principles of therapeutics	20
5.4.	Psychosocial, cultural, occupational, and environmental considerations	20
6.	Respiratory System	21
6.1.	Normal processes	21
6.2.	Abnormal processes	21
6.3.	Principles of therapeutics	22
6.4.	Psychosocial, cultural, occupational, and environmental considerations	23
7.	Cardiovascular System	23
7.1	Normal processes	23
7.2.	Abnormal processes	23
7.3.	Principles of therapeutics	24
7.4.	Psychosocial, cultural, occupational, and environmental considerations	25
8.	Gastrointestinal System	25
8.1.	Normal processes	25
8.2.	Abnormal processes	26
8.3.	Principles of therapeutics	27
8.4.	Psychosocial, cultural, occupational, and environmental considerations	27
9.	Renal/Urinary System	27
9.1.	Normal processes	27
9.2.	Abnormal processes	28
9.3.	Principles of therapeutics	29
9.4.	Psychosocial, cultural, occupational, and environmental considerations	29
10.	Reproductive System	29
10.1.	Normal processes	29
10.2.	Abnormal processes	30
10.3.	Principles of therapeutics	31
10.4.	Psychosocial, cultural, occupational, and environmental considerations	32
11.	Endocrine System	32
11.1.	Normal processes	32
11.2.	Abnormal processes	33

Topic Number	Topic Description	Page
11.3.	Principles of therapeutics	34
11.4.	Psychosocial, cultural, occupational, and environmental considerations	34

USMLE Step 1 Topics by Block

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
1.	1.		1.	1.	1.	1.	1.	1.	1.	1.	General Principles
	1.1.		1.1.			1.1.				1.1.	Biochemistry and molecular biology
	1.1.1.		1.1.1.							1.1.1.	gene expression: DNA structure, replication, and exchange
	1.1.1.1.									1.1.1.1.	DNA structure: single- and double-stranded DNA, stabilizing forces, supercoiling
	1.1.1.2.		1.1.1.2.							1.1.1.2.	analysis of DNA: sequencing, restriction analysis, PCR amplification, hybridization
	1.1.1.3.		1.1.1.3.							1.1.1.3.	DNA replication, mutation, repair, degradation, and inactivation
	1.1.1.4.									1.1.1.4.	gene structure and organization; chromosomes; centromere, telomere
	1.1.1.5.		1.1.1.5.							1.1.1.5.	recombination, insertion sequences, transposons
	1.1.1.6.		1.1.1.6.							1.1.1.6.	mechanisms of genetic exchange (transformation, transduction, conjugation) cross-over, recombination, linkage
	1.1.1.7.		1.1.1.7.							1.1.1.7.	plasmids and bacteriophages
	1.1.1.8.									1.1.1.8.	di- and tri-nucleotide repeats
1.1.2.	1.1.2.		1.1.2.							1.1.2.	gene expression: transcription
	1.1.2.1.									1.1.2.1.	transcription of DNA into RNA, enzymatic reactions, RNA, RNA degradation
	1.1.2.2.		1.1.2.2.							1.1.2.2.	regulation: cis-regulatory elements, transcription factors, enhancers, promoters, silencers, repressants, splicing
	1.1.2.3.									1.1.2.3.	defects in transcription and RNA processing
	1.1.3.		1.1.3.							1.1.3.	gene expression: translation
	1.1.3.1.									1.1.3.1.	the genetic code
	1.1.3.2.									1.1.3.2.	structure and function of tRNA
	1.1.3.3.									1.1.3.3.	structure and function, of ribosomes
	1.1.3.4.		1.1.3.4.							1.1.3.4.	protein synthesis
	1.1.3.5.									1.1.3.5.	regulation of translation

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	1.1.3.6.									1.1.3.6.	post-translational modifications (phosphorylation, addition of CHO units)
	1.1.3.7.									1.1.3.7.	protein degradation
	1.1.3.8.					1.1.3.8.				1.1.3.8.	defects in translation and protein structure (eg, mutations, hemoglobinopathies, cystic fibrosis)
	1.1.4.									1.1.4.	structure and function of proteins
	1.1.4.1.									1.1.4.1.	principles of protein structure and folding
	1.1.4.2.									1.1.4.2.	enzymes: kinetics, reaction mechanisms
	1.1.4.3.									1.1.4.3.	structural and regulatory proteins: ligand binding, self-assembly
1.1.4.4.	1.1.4.4.					1.1.4.4.				1.1.4.4.	mutations that alter proteins (eg, hemoglobinopathies, familial hypercholesterolemia, cystic fibrosis)
	1.1.4.5.									1.1.4.5.	regulatory properties
	1.1.5.	1.1.5.							1.1.5.	1.1.5.	energy metabolism: metabolic sequences and regulation
	1.1.5.1.	1.1.5.1.								1.1.5.1.	generation of energy from carbohydrates, from fatty acids, essential amino acids, glycolysis, pentose phosphate pathway, tricarboxylic acid
	1.1.5.2.	1.1.5.2.								1.1.5.2.	storage of energy: gluconeogenesis, glycogenesis, fatty acid and triglyceride synthesis
	1.1.5.3.	1.1.5.3.								1.1.5.3.	thermodynamics: free energy, chemical equilibria and group transfer potential, energetics of ATP and other high-energy compounds
	1.1.5.4.	1.1.5.4.							1.1.5.4.	1.1.5.4.	disorders of energy metabolism (eg, mitochondrial myopathies, diabetic ketoacidosis)
	1.1.6.									1.1.6.	metabolic pathways of small molecules and associated diseases
	1.1.6.1.					1.1.6.1.				1.1.6.1.	biosynthesis and degradation of amino acids (eg, homocystinuria)
	1.1.6.2.					1.1.6.2.				1.1.6.2.	biosynthesis and degradation of purine and pyrimidine nucleotides (eg, gout, Lesch-Nyhan syndrome)
	1.1.6.3.								1.1.6.3.	1.1.6.3.	biosynthesis and degradation of lipids (eg, dyslipidemias, carnitine deficiency, adrenogenital syndromes)
		1.1.6.4.								1.1.6.4.	biosynthesis and degradation of porphyrins
	1.1.7.	1.1.7.								1.1.7.	biosynthesis and degradation of other macromolecules and associated abnormalities, complex carbohydrates (eg, lysosomal storage disease), glycoproteins, and proteoglycans
1.2.	1.2.	1.2.	1.2.	1.2.	1.2.	1.2.	1.2.			1.2.	Biology of cells

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	1.2.1.	1.2.1.								1.2.1.	structure and composition of cell membranes, ion channels and pumps, pinocytosis
		1.2.2.	1.2.2.	1.2.2.	1.2.2.					1.2.2.	second messenger systems, signal transduction
	1.2.3.									1.2.3.	organelles
	1.2.3.1.									1.2.3.1.	endoplasmic reticulum, Golgi complex
	1.2.3.2.									1.2.3.2.	mitochondria
	1.2.3.3.									1.2.3.3.	lysosome, peroxisome, endosome
	1.2.3.4.									1.2.3.4.	centriole, microtubule
	1.2.3.5.									1.2.3.5.	ribosome, polysome
	1.2.3.6.									1.2.3.6.	inclusions, vacuoles
	1.2.3.7.									1.2.3.7.	plasma membrane
	1.2.3.8.									1.2.3.8.	cytoplasm
	1.2.4.									1.2.4.	secretion and exocytosis, endocytosis
	1.2.5.									1.2.5.	cytoskeleton, including cell movement and intracellular transport
	1.2.6.									1.2.6.	nucleus (chromatin, nucleolus, the nuclear envelope and nuclear matrix)
	1.2.7.									1.2.7.	cell cycle, mitosis, meiosis, structure and regulation of spindle apparatus, control points
	1.2.8.									1.2.8.	surface specialization, intercellular junctions, gap junctions, desmosomes
	1.2.9.	1.2.9.								1.2.9.	muscle: structure and regulation of contractile elements, excitation-contraction coupling, ryanodine receptors
		1.2.10.								1.2.10.	excitable cells; voltage- and ligand-gated channels and receptors
	1.2.11.	1.2.11.	1.2.11.							1.2.11.	cell-to-cell communication
	1.2.12.									1.2.12.	extracellular matrix, fibroglycans, hydrators, proteoglycans, fibronectins, ground substance, nexins, adhesion molecules, annexins
						1.2.13.				1.2.13.	cell injury and repair mechanism
						1.2.14.				1.2.14.	adaptation to chronic injury
1.2.15.			1.2.15.			1.2.15.				1.2.15.	irreversible injury, programmed cell death (apoptosis)
					1.2.16.	1.2.16.	1.2.16.			1.2.16.	injury due to ischemia and reperfusion, oxygen radicals, free radicals, excitotoxic amino acids

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1.3.	1.3.			1.3.		1.3.				1.3.	Human development and genetics
1.3.1.	1.3.1.									1.3.1.	embryogenesis: programmed gene expression, tissue differentiation and morphogenesis, homeotic genes
	1.3.2.				?	?	1.3.2.		?	1.3.2.	congenital abnormalities: principles, patterns of anomalies, maternal illness, drug abuse, medications, infectious agents, malnutrition, dysmorphogenesis
	1.3.3.					1.3.3.				1.3.3.	gene analysis: pedigree analysis, genetic markers, linkage analysis, gene mapping, sequential expression
	1.3.4.									1.3.4.	population genetics: Hardy-Weinberg law, founder effects, mutation-selection equilibrium
	1.3.5.					1.3.5.	?		?	1.3.5.	disease-producing mutations
	1.3.5.1.					1.3.5.1.				1.3.5.1.	chromosomal abnormalities: translocations; deletions; duplications, including nucleotide repeats and inversions, missense, nonsense
	1.3.5.2.									1.3.5.2.	imprinting and mosaicism (eg, Prader-Willi syndrome)
	1.3.5.3.									1.3.5.3.	single gene defects
	1.3.5.3.1.									1.3.5.3.1.	homozygosity, heterozygosity
	1.3.5.3.2.									1.3.5.3.2.	autosomal dominant
	1.3.5.3.3.									1.3.5.3.3.	autosomal recessive
	1.3.5.3.4.									1.3.5.3.4.	X-linked
	1.3.5.3.5.									1.3.5.3.5.	phenotypic variation: pleiotropy, variable expression, delayed onset, anticipation
						1.3.6.				1.3.6.	multifactorial diseases
						1.3.7.				1.3.7.	principles of therapy
	1.3.7.1.					1.3.7.1.				1.3.7.1.	application of diagnostic methods: predictive testing, screening, counseling, prenatal diagnosis
	1.3.7.2.					1.3.7.2.				1.3.7.2.	potentials for gene therapy: antisense oligonucleotides, antisense genes, viral vectors, ex vivo therapy
						1.3.7.3.				1.3.7.3.	ethical issues
				1.3.8.		1.3.8.				1.3.8.	pharmacogenetics
1.4.	1.4.		1.4.	1.4.		1.4.				1.4.	Biology of tissues and their responses to disease

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1.4.1.	1.4.1.									1.4.1.	structural and functional characteristics of endothelium, epithelium, and mesothelium
			1.4.2.			1.4.2.				1.4.2.	inflammation
			1.4.2.1.			1.4.2.1.				1.4.2.1.	acute inflammation: vasoconstriction, vasodilation, hyperemia, transudation, edema
			1.4.2.2.							1.4.2.2.	cell-derived mediators
			1.4.2.3.							1.4.2.3.	plasma factors
	1.4.2.4.		1.4.2.4.			1.4.2.4.				1.4.2.4.	arachidonic acid metabolites
			1.4.2.5.							1.4.2.5.	chemotaxis, neutrophils, mononuclear phagocytes, stimulus-response coupling, cell adherence, inflammatory cell activation, opsonization, phagocytosis, bactericidal mechanisms
	1.4.2.6.		1.4.2.6.			1.4.2.6.				1.4.2.6.	lysosomal enzymes, reactive oxygen metabolites
			1.4.2.7.			1.4.2.7.				1.4.2.7.	chronic inflammation, fibrosis
			1.4.2.8.			1.4.2.8.				1.4.2.8.	systemic manifestations: fever, leukocytosis, leukemoid reaction, chills
						1.4.3.				1.4.3.	repair and regeneration
	1.4.3.1.					1.4.3.1.				1.4.3.1.	reparative processes, extracellular matrix, collagen, basement membranes, elastic fibers, fibronectin, proteoglycans, factor VIII (antihemophilic factor), fibrin.
	1.4.3.2.	1.4.3.2.				1.4.3.2.				1.4.3.2.	wound and injury healing: hemorrhage, clot formation., active fibroblasts, phagocytosis, granulation tissue, angiogenesis, scar formation, cell migration mechanisms
						1.4.3.3.				1.4.3.3.	regenerative processes
1.4.4.	1.4.4.		1.4.4.			1.4.4.				1.4.4.	neoplasia
						1.4.4.1.				1.4.4.1.	classification of neoplasms, bases for histologic diagnosis of malignancy
						1.4.4.2.				1.4.4.2.	grading and staging of neoplasms
	1.4.4.3.					1.4.4.3.				1.4.4.3.	cell biology, biochemistry, and molecular biology of neoplastic cells: cell kinetics, doubling time, control points, transformation, viruses, oncogenes, viral transformation
	1.4.4.4.					1.4.4.4.				1.4.4.4.	polypeptide growth factors, altered cell differentiation, and proliferation

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
	1.4.4.5.					1.4.4.5.				1.4.4.5.	hereditary neoplastic disorders, chromosomal abnormalities, translocations, karyotypic abnormalities, predisposing mendelian conditions, point mutations
	1.4.4.6.		1.4.4.6.			1.4.4.6.				1.4.4.6.	carcinogenesis, oncogenes, retroviruses, tumor suppressor genes, control of cell growth, cell cycle check points
1.4.4.7.						1.4.4.7.				1.4.4.7.	invasion and metastasis
			1.4.4.8.			1.4.4.8.				1.4.4.8.	tumor immunology
						1.4.4.9.				1.4.4.9.	paraneoplastic manifestations of cancer
						1.4.4.10.				1.4.4.10.	cancer epidemiology and prevention
1.5.		1.5.			1.5.			1.5.	1.5.	1.5.	Psychosocial, cultural, occupational, and environmental influences on behavior, health, and disease processes
					1.5.1.			1.5.1.	1.5.1.	1.5.1.	progression through the life cycle (birth through senescence)
					1.5.1.1.					1.5.1.1.	cognitive and language development
					1.5.1.2.					1.5.1.2.	motor skills development
1.5.1.3.		1.5.1.3.			1.5.1.3.			1.5.1.3.		1.5.1.3.	sexual development (eg, puberty, menopause)
					1.5.1.4.			1.5.1.4.		1.5.1.4.	social and interpersonal development
					1.5.1.5.			1.5.1.5.		1.5.1.5.	influence of developmental stage on physician/patient interview
					1.5.2.			1.5.2.	1.5.2.	1.5.2.	psychologic and social factors influencing patient behavior
					1.5.2.1.					1.5.2.1.	personality traits or coping style
					1.5.2.2.					1.5.2.2.	psychodynamic and behavioral factors, related past experience
					1.5.2.3.				1.5.2.3.	1.5.2.3.	family and cultural factors, including socioeconomic status
					1.5.2.4.				1.5.2.4.	1.5.2.4.	adaptive behavioral responses to stress and illnessmaladaptive behavioral responses to stress and illness (eg, drug-seeking behavior)
					1.5.2.5.				1.5.2.5.	1.5.2.5.	interactions between the patient and the physician or the health care system (eg, transference)
					1.5.2.6.				1.5.2.6.	1.5.2.6.	patient adherence (general and adolescent)
								1.5.3.	1.5.3.	1.5.3.	patient interviewing, consultation, and interactions with the family
									1.5.3.1.	1.5.3.1.	establishing and maintaining rapport
									1.5.3.2.	1.5.3.2.	data gathering
									1.5.3.3.	1.5.3.3.	approaches to patient education
									1.5.3.4.	1.5.3.4.	enticing patients to make lifestyle changes

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								1.5.3.5.	1.5.3.5.	1.5.3.5.	communicating bad news
									1.5.3.6.	1.5.3.6.	difficult interviews (eg, anxious or angry patients)
									1.5.3.7.	1.5.3.7.	multicultural and ethnic characteristics
1.5.4.								1.5.4.	1.5.4.	1.5.4.	medical ethics, jurisprudence, and professional behavior
									1.5.4.1.	1.5.4.1.	consent and informed consent to treatment
									1.5.4.2.	1.5.4.2.	physician-patient relationships (eg, ethical conduct, confidentiality)
								1.5.4.3.	1.5.4.3.	1.5.4.3.	death and dying
1.5.4.4.									1.5.4.4.	1.5.4.4.	birth-related issues
									1.5.4.5.	1.5.4.5.	issues related to patient participation in research
									1.5.4.6.	1.5.4.6.	interactions with other health professionals (eg, referral)
									1.5.4.7.	1.5.4.7.	sexuality and the profession, other "boundary" issues
									1.5.4.8.	1.5.4.8.	ethics of managed care
									1.5.5.	1.5.5.	organization and cost of health care delivery
		1.6.						1.6.	1.6.	1.6.	Multisystem processes
		1.6.1.						1.6.1.	1.6.1.	1.6.1.	nutrition
		1.6.1.1.						1.6.1.1.		1.6.1.1.	generation, expenditure, and storage of energy at the whole-body level
		1.6.1.2.						1.6.1.2.		1.6.1.2.	caloric and nitrogen balance
		1.6.1.3.						1.6.1.3.		1.6.1.3.	digestion and absorption of nutrients
		1.6.1.4.						1.6.1.4.		1.6.1.4.	functions of essential nutrients
		1.6.1.5.						1.6.1.5.		1.6.1.5.	protein-calorie malnutrition
		1.6.1.6.						1.6.1.6.		1.6.1.6.	vitamin deficiencies and toxicities
		1.6.1.6.1.						1.6.1.6.1.		1.6.1.6.1.	vitamin A
		1.6.1.6.2.						1.6.1.6.2.		1.6.1.6.2.	B vitamins
		1.6.1.6.3.						1.6.1.6.3.		1.6.1.6.3.	vitamin C
		1.6.1.6.4.						1.6.1.6.4.		1.6.1.6.4.	vitamin D
		1.6.1.6.5.						1.6.1.6.5.		1.6.1.6.5.	vitamin E
		1.6.1.6.6.						1.6.1.6.6.		1.6.1.6.6.	vitamin K
		1.6.1.7.						1.6.1.7.		1.6.1.7.	mineral deficiencies and toxicities
								1.6.1.8.		1.6.1.8.	eating disorders

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								1.6.1.8.1.	1.6.1.8.1.	1.6.1.8.1.	obesity
								1.6.1.8.2.		1.6.1.8.2.	anorexia and bulimia
		1.6.1.8.3.						1.6.1.8.3.		1.6.1.8.3.	alternative diets, nutritional supplements, food fads
								1.6.1.8.4.		1.6.1.8.4.	treatment of eating disorders
										1.6.2.	temperature regulation
										1.6.3.	adaptation to environmental extremes
										1.6.3.1.	physical and associated disorders
										1.6.3.2.	temperature
										1.6.3.3.	radiation
										1.6.3.4.	bums, including electrocution, lightning
										1.6.3.5.	decreased atmospheric pressure, high-altitude sickness
										1.6.3.6.	increased water pressure (eg, "bends")
										1.6.4.	chemical
										1.6.4.1.	gases, vapors, smoke inhalation (eg, poison gases) agricultural and occupational hazards (eg, insecticides)
										1.6.4.2.	volatile organic solvents (eg, chloroform)
										1.6.4.3.	heavy metals (eg, lead)
										1.6.4.4.	principles of poisoning and therapy
		1.7.	1.7.	1.7.	1.7.	1.7.	1.7.	1.7.	1.7.	1.7.	Pharmacodynamic and pharmacokinetic processes
				1.7.1.		1.7.1.				1.7.1.	general principles
				1.7.1.1.		1.7.1.1.				1.7.1.1.	pharmacokinetics: absorption, distribution, metabolism, excretion, dosage intervals
				1.7.1.2.		1.7.1.2.				1.7.1.2.	mechanisms of drug action, structure-activity relationships, receptors, signal transduction
				1.7.1.3.						1.7.1.3.	concentration- and dose-effect relationships (eg, efficacy, potency), types of agonists (eg, full, partial, invertebrate and antagonists and their actions)
				1.7.1.4.						1.7.1.4.	individual factors altering pharmacokinetics and pharmacodynamics (eg, age, gender, disease, tolerance, compliance, body weight, metabolic proficiency)
				1.7.1.5.						1.7.1.5.	drug side effects, overdosage, toxicology
				1.7.1.6.						1.7.1.6.	drug interactions

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
				1.7.1.7.						1.7.1.7.	regulatory issues (eg, drug development, approval, scheduling)
				1.7.2.			1.7.2. ?			1.7.2.	general properties of autacoids
					1.7.2.1.		1.7.2.1. ?			1.7.2.1.	peptides and analogs
					1.7.2.2.					1.7.2.2.	biogenic amines
			1.7.2.3.	1.7.2.3.			1.7.2.3. ?			1.7.2.3.	prostaglandins, leukotrienes, thromboxanes, and their inhibitors
		1.7.2.4.								1.7.2.4.	smooth muscle/endothelial autacoids (eg, nitric oxide)
			1.7.3.			1.7.3.				1.7.3.	general properties of antimicrobials
			1.7.3.1.			1.7.3.1.				1.7.3.1.	antibacterials
			1.7.3.2.			1.7.3.2.				1.7.3.2.	antivirals
			1.7.3.3.			1.7.3.3.				1.7.3.3.	antifungals
			1.7.3.4.			1.7.3.4.				1.7.3.4.	antiparasitics
						1.7.4.				1.7.4.	general properties of antineoplastic agents and immunosuppress-ants, drug effects on rapidly dividing mammalian cells
			1.8.			1.8.				1.8.	Microbial biology and infection
			1.8.1.							1.8.1.	microbial classification and its basis
			1.8.2.			1.8.2.				1.8.2.	bacteria and bacterial diseases
			1.8.2.1.							1.8.2.1.	structure and composition
			1.8.2.2.							1.8.2.2.	metabolism, physiology, and regulation
			1.8.2.3.							1.8.2.3.	genetics
			1.8.2.4.							1.8.2.4.	principles of sterilization and pure culture technique
			1.8.2.5.			1.8.2.5.				1.8.2.5.	nature and mechanisms of action of virulence factors
			1.8.2.6.			1.8.2.6.				1.8.2.6.	pathophysiology of infection
			1.8.2.7.			1.8.2.7.				1.8.2.7.	epidemiology and ecology
			1.8.2.8.							1.8.2.8.	principles of laboratory diagnosis
			1.8.2.9.			1.8.2.9.				1.8.2.9.	immunization
			1.8.3.			1.8.3.				1.8.3.	viruses and viral diseases
			1.8.3.1.							1.8.3.1.	physical and chemical properties
			1.8.3.2.							1.8.3.2.	replication
			1.8.3.3.							1.8.3.3.	genetics
			1.8.3.4.							1.8.3.4.	principles of cultivation, assay, and laboratory diagnosis

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
			1.8.3.5.							1.8.3.5.	molecular basis of pathogenesis
			1.8.3.6.			1.8.3.6.				1.8.3.6.	pathophysiology of infection
			1.8.3.7.			1.8.3.7.				1.8.3.7.	latent and persistent infections
			1.8.3.8.			1.8.3.8.				1.8.3.8.	epidemiology
			1.8.3.9.			1.8.3.9.				1.8.3.9.	oncogenic viruses
			1.8.3.10.			1.8.3.10.				1.8.3.10.	immunization
			1.8.4.							1.8.4.	fungi and fungal infections
			1.8.4.1.							1.8.4.1.	structure, physiology, and pathogenesis
			1.8.4.2.							1.8.4.2.	superficial, cutaneous, and subcutaneous mycoses
			1.8.4.3.							1.8.4.3.	systemic mycoses
			1.8.4.4.							1.8.4.4.	opportunistic mycoses
			1.8.4.5.							1.8.4.5.	epidemiology and diagnosis
			1.8.5.			1.8.5.				1.8.5.	parasites and parasitic diseases
			1.8.5.1.							1.8.5.1.	life cycles
			1.8.5.2.							1.8.5.2.	epidemiology and laboratory diagnosis
			1.8.5.3.							1.8.5.3.	pathogenesis and host responses
			1.8.6.			1.8.6.				1.8.6.	interactions between antimicrobials and infectious organisms
			1.8.6.1.			1.8.6.1.				1.8.6.1.	sites and mechanisms of action of antibiotics and other chemotherapeutic agents
			1.8.6.2.			1.8.6.2.				1.8.6.2.	resistance to antibiotics and other chemotherapeutic agents
			1.9.							1.9.	immune responses
			1.9.1.							1.9.1.	production and function of granulocytes, natural killer cells, and macrophages
			1.9.2.							1.9.2.	production and function of T lymphocytes, T-lymphocyte receptors, lymphokines, cytokines
			1.9.3.							1.9.3.	production and function of B lymphocytes and plasma cells; immunoglobulins and antibodies: structure, classes, molecular bases of specificity, receptors

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
			1.9.4.							1.9.4.	antigenicity and immunogenicity; host defenses and immune responses (eg, accessory cells and factors, primary and secondary responses, central mechanisms); passive transfer of immunity, including mother-to-infant transfer; antibody-antigen reactions in vitro; complement and cell-mediated reactions in vitro, including diagnostic tests; tolerance and clonal deletion
			1.9.5.							1.9.5.	immunologic mediators: chemistry, function, molecular biology, classic and alternative complement pathways, arachidonic acid metabolites, histamine, nitric oxide, cytokines, chemokines
			1.9.6.							1.9.6.	immunogenetics; MHC structure and function, class I, II molecules; erythrocyte antigens; transplantation
			1.9.7.							1.9.7.	vaccines, protective immunity
			1.9.8.			1.9.8.				1.9.8.	alterations in immunologic function
			1.9.8.1.							1.9.8.1.	T and B-lymphocyte deficiencies
			1.9.8.2.							1.9.8.2.	deficiencies of phagocytic cells
			1.9.8.3.							1.9.8.3.	combined immunodeficiency disease
			1.9.8.4			1.9.8.4				1.9.8.4	HIV infection/AIDS and other acquired disorders of immune responsiveness
						1.9.8.5.				1.9.8.5.	drug-induced alterations in immune responses, immunopharmacology
			1.9.9.			1.9.9.				1.9.9.	immunologically mediated disorders
			1.9.9.1.			1.9.9.1.				1.9.9.1.	type I, type II, type III hypersensitivity
			1.9.9.2.			1.9.9.2.				1.9.9.2.	type IV hypersensitivity
			1.9.9.3.			1.9.9.3.				1.9.9.3.	transplant rejection
			1.9.9.4.			1.9.9.4.				1.9.9.4.	autoimmune disorders
			1.9.9.5.							1.9.9.5.	risks of transplantation, transfusion (eg, graft-versus-host disease)
			1.9.9.6.							1.9.9.6.	isoimmunization, hemolytic disease of the newborn
			1.9.9.7.			1.9.9.7.				1.9.9.7.	immunopathogenesis
1.10.				1.10.		1.1				1.10.	Quantitative methods
1.10.1.				1.10.1.		1.10.1.				1.10.1.	fundamental concepts of measurement
1.10.1.1.				1.10.1.1.		1.10.1.1.				1.10.1.1.	scales of measurement
1.10.1.2.				1.10.1.2.		1.10.1.2.				1.10.1.2.	distribution, central tendency, variability, probability

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
1.10.1.3.				1.10.1.3.		1.10.1.3.				1.10.1.3.	disease prevalence and incidence
1.10.1.4.				1.10.1.4.		1.10.1.4.				1.10.1.4.	disease outcomes (eg, fatality rates)
1.10.1.5.				1.10.1.5.		1.10.1.5.				1.10.1.5.	associations (eg, risk factors)
1.10.1.6.				1.10.1.6.		1.10.1.6.				1.10.1.6.	health impact (eg, risk differences and ratios)
1.10.1.7.				1.10.1.7.		1.10.1.7.				1.10.1.7.	sensitivity, specificity, predictive values
1.10.2.				1.10.2.		1.10.2.				1.10.2.	fundamental concepts of study design
1.10.2.1.				1.10.2.1.		1.10.2.1.				1.10.2.1.	types of experimental studies (eg, clinical trials, community intervention trials)
1.10.2.2.				1.10.2.2.		1.10.2.2.				1.10.2.2.	types of observational studies (eg, cohort, case-control, cross-sectional, case series, community surveys)
1.10.2.3.				1.10.2.3.						1.10.2.3.	sampling and sample size
1.10.2.4.				1.10.2.4.						1.10.2.4.	subject selection and exposure allocation (eg, randomization, stratification, self-selection, systematic assignment)
1.10.2.5.				1.10.2.5.						1.10.2.5.	outcome assessment
1.10.2.6.				1.10.2.6.						1.10.2.6.	internal and external validity
1.10.3.				1.10.3.						1.10.3.	fundamental concepts of hypothesis testing and statistical inference
1.10.3.1.				1.10.3.1.						1.10.3.1.	confidence intervals
1.10.3.2.				1.10.3.2.						1.10.3.2.	statistical significance and type I error
1.10.3.3.				1.10.3.3.						1.10.3.3.	statistical power and type II error
1.10.3.4.				1.10.3.4.						1.10.3.4.	correlation or covariance
2.	2.	2.	2.			2.			2.	2.	Hematopoietic and Lymphoreticular Systems
2.1.	2.1.	2.1.	2.1.			2.1.				2.1.	Normal processes
2.1.1.										2.1.1.	embryonic development, fetal maturation, and perinatal changes
2.1.2.										2.1.2.	organ structure and function
	2.1.3.	2.1.3.	2.1.3.			2.1.3.				2.1.3.	cell/tissue structure, production, and function
		2.1.3.1.				2.1.3.1.				2.1.3.1.	erythrocytes, hemoglobin, O ₂ and CO ₂ transport, transport proteins
		2.1.3.2.				2.1.3.2.				2.1.3.2.	platelets
		2.1.3.3.	2.1.3.3.			2.1.3.3.				2.1.3.3.	leukocytes and the lymphoreticular system
		2.1.3.4.				2.1.3.4.				2.1.3.4.	coagulation and fibrinolytic factors
						2.1.4.				2.1.4.	repair, regeneration, and changes associated with stage of life

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
2.2.			2.2.			2.2.				2.2.	Abnormal processes
2.2.1.						2.2.1.				2.2.1.	genetic disorders
2.2.2.						2.2.2.				2.2.2.	congenital disorders
			2.2.3.			2.2.3.				2.2.3.	infectious, inflammatory, and immunologic disorders
			2.2.3.1.			2.2.3.1.				2.2.3.1.	infections of the blood, reticuloendothelial system, and lymphatics
			2.2.3.2.							2.2.3.2.	allergic and anaphylactic reactions and other immunopathologic mechanisms
			2.2.3.3.			2.2.3.3.				2.2.3.3.	acquired disorders of immune deficiency
			2.2.3.4.			2.2.3.4.				2.2.3.4.	autoimmunity and autoimmune diseases
						2.2.3.5.				2.2.3.5.	anemia of chronic disease
						2.2.3.6.				2.2.3.6.	transfusion complications, transplant rejection
						2.2.4.				2.2.4.	neoplastic disorders
						2.2.4.1.				2.2.4.1.	lymphoma
						2.2.4.2.				2.2.4.2.	acute myelocytic leukemia
						2.2.4.3.				2.2.4.3.	chronic myelocytic leukemia
						2.2.4.4.				2.2.4.4.	multiple myeloma, dysproteinemias, amyloidosis
						2.2.5.				2.2.5.	metabolic and regulatory disorders
						2.2.5.1.				2.2.5.1.	anemias and cytopenias (eg, iron deficiency anemia)
						2.2.5.2.				2.2.5.2.	cythemias
						2.2.5.3.				2.2.5.3.	hemorrhagic and hemostatic disorders, purpura (acquired and congenital)
						2.2.5.4.				2.2.5.4.	bleeding secondary to platelet disorders
						2.2.6.				2.2.6.	vascular and endothelial disorders (eg, effects and complications of splenectomy, traumatic and mechanical injury to erythrocytes, splenic rupture)
						2.2.7.				2.2.7.	systemic disorders affecting the hematopoietic and lymphoreticular systems (eg, nutritional deficiencies, systemic lupus erythematosus)
						2.2.8.				2.2.8.	idiopathic disorders
						2.3.				2.3.	Principles of therapeutics

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
						2.3.1.				2.3.1.	mechanisms of action and therapeutic effects of agents for treatment of disorders of the hematopoietic and lymphoreticular systems
						2.3.1.1.				2.3.1.1.	blood and blood products
						2.3.1.2.				2.3.1.2.	treatment of anemia, drugs stimulating erythrocyte production (eg, erythropoietin)
						2.3.1.3.				2.3.1.3.	drugs stimulating leukocyte production (eg, G-CSF, Gm-CSF)
						2.3.1.4.				2.3.1.4.	anticoagulants, thrombolytic drugs
						2.3.1.5.				2.3.1.5.	anti platelet drugs
						2.3.1.6.				2.3.1.6.	antimicrobials (eg, antimalarials, anti-HIV)
						2.3.1.7.				2.3.1.7.	antineoplastic and immunosuppressive drugs
						2.3.1.8.				2.3.1.8.	drugs used to treat acquired disorders of immune responsiveness
						2.3.2.				2.3.2.	other therapeutic modalities (eg, splenectomy, chelating agents, radiation therapy for lymphomas, plasmapheresis)
						2.3.3.				2.3.3.	adverse effects of drugs used in the treatment of disorders of the hematopoietic and lymphoreticular systems, including special considerations related to the newborn and elderly
						2.3.4.				2.3.4.	iatrogenic effects on the hematopoietic system
									2.4.	2.4.	Psychosocial, cultural, occupational, and environmental considerations
									2.4.1.	2.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, diet, depression and immune responses, "blood doping" among athletes, compliance, modification of risk factors)
									2.4.2.	2.4.2.	influence of disease and treatment on person, family, and society (eg, childhood leukemia)
									2.4.3.	2.4.3.	occupational and other environmental risk factors for diseases of the hematopoietic and lymphoreticular systems (eg, heavy metals, hydrocarbons, lead)
3.	3.	3.		3.	3.	3.	3.		3.	3.	Central and Peripheral Nervous Systems
3.1.	3.1.	3.1.			3.1.					3.1.	Normal processes
3.1.1.					3.1.1.					3.1.1.	embryonic development, fetal maturation, and perinatal changes
3.1.1.1.					3.1.1.1.					3.1.1.1.	neural tube derivatives

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
3.1.1.2.					3.1.1.2.					3.1.1.2.	cerebral ventricles
3.1.1.3.					3.1.1.3.					3.1.1.3.	neural crest derivatives
3.1.2.					3.1.2.					3.1.2.	organ structure and function (gross, microscopic, and blood supply)
3.1.2.1.					3.1.2.1.					3.1.2.1.	spinal cord, including spinal reflexes
3.1.2.2.					3.1.2.2.					3.1.2.2.	brain stem, including cranial nerves, ascending and descending systems, and reticular formation
					3.1.2.3.					3.1.2.3.	brain, including hypothalamic function, higher functions: cognition, language, memory; limbic system and emotional behavior; circadian rhythms and sleep; and control of eye movement
3.1.2.4.					3.1.2.4.					3.1.2.4.	sensory systems
3.1.2.4.1.					3.1.2.4.1.					3.1.2.4.1.	general sensory modalities, including proprioception and pain
					3.1.2.4.2.					3.1.2.4.2.	special sensory modalities, including vision, hearing, balance, taste, and olfaction
3.1.2.5.					3.1.2.5.					3.1.2.5.	motor systems
3.1.2.5.1.					3.1.2.5.1.					3.1.2.5.1.	somatotopic localization
3.1.2.5.2.					3.1.2.5.2.					3.1.2.5.2.	upper and lower motor neurons
					3.1.2.5.3.					3.1.2.5.3.	reflexes, posture, locomotion (movement)
					3.1.2.6.					3.1.2.6.	basal ganglia and cerebellum
3.1.2.7.					3.1.2.7.					3.1.2.7.	autonomic nervous system, including sympathetic and parasympathetic nervous systems
3.1.3.	3.1.3.	3.1.3.			3.1.3.					3.1.3.	cell/tissue structure and function
	3.1.3.1.				3.1.3.1.					3.1.3.1.	axonal transport
		3.1.3.2.			3.1.3.2.					3.1.3.2.	excitable properties of neurons, axons and dendrites, including channels
		3.1.3.3.			3.1.3.3.					3.1.3.3.	synthesis, storage, release, reuptake, and degradation of neurotransmitters and neuromodulators
					3.1.3.4.					3.1.3.4.	pre- and postsynaptic receptor interactions, trophic and growth factors
		3.1.3.5.			3.1.3.5.					3.1.3.5.	brain metabolism, nutrition
	3.1.3.6.				3.1.3.6.					3.1.3.6.	glia, myelin
					3.1.3.7.					3.1.3.7.	brain homeostasis
3.1.3.7.1.					3.1.3.7.1.					3.1.3.7.1.	blood-brain barrier

Clinically-Oriented Anatomy (Lee)	Biology of Cells and Tissues (Hutson)	Structure and Function of Major Organ Systems (Pressley)	Host Defense (Colmer-Hamood)	General Principles (Freeman)	Integrated Neurosciences (Freeman)	Mutisystem Disorders and Cancer (Colmer-Hamood)	Systems Disorders I (Graham/Oliver)	Systems Disorders II and Life Span Issues (Raj)	Early Clinical Experience (Farrell/Peck)	Topic Numbers for all Topics	Topic Descriptions
3.1.3.7.2.					3.1.3.7.2.					3.1.3.7.2.	cerebrospinal fluid formation and flow, choroid plexus
					3.1.4.					3.1.4.	repair, regeneration, and changes associated with stage of life
3.2.					3.2.		3.2.		3.2.	3.2.	Abnormal processes
					3.2.1.					3.2.1.	genetic disorders
3.2.2.					3.2.2.					3.2.2.	congenital disorders
3.2.2.1.					3.2.2.1.					3.2.2.1.	neural tube defects
					3.2.2.2.					3.2.2.2.	cerebral palsy
					3.2.2.3.					3.2.2.3.	mental retardation
3.2.3.					3.2.3.					3.2.3.	infectious, inflammatory, and immunologic disorders
3.2.3.1.					3.2.3.1.					3.2.3.1.	infectious disorders
3.2.3.1.1.					3.2.3.1.1.		3.2.3.1.1.			3.2.3.1.1.	conjunctivitis, otitis, mastoiditis
					3.2.3.1.2.					3.2.3.1.2.	acute and chronic meningitis
					3.2.3.1.3.					3.2.3.1.3.	parenchymal disorders, including abscess, encephalitis, neurosyphilis
					3.2.3.1.4.					3.2.3.1.4.	manifestations of AIDS
3.2.3.1.5.					3.2.3.1.5.					3.2.3.1.5.	spinal cord, peripheral nerve, neuromuscular junction
					3.2.3.2.					3.2.3.2.	demyelinating disorders, including multiple sclerosis, Guillain-Barre syndrome
					3.2.3.3.					3.2.3.3.	myasthenia gravis
3.2.4.					3.2.4.					3.2.4.	traumatic and mechanical disorders
3.2.4.1.					3.2.4.1.					3.2.4.1.	brain, brain stem (eg, subdural and epidural hematomas, increased ICP), and spinal cord (eg, cord compression)
3.2.4.2.					3.2.4.2.					3.2.4.2.	peripheral nerve
3.2.4.3.					3.2.4.3.					3.2.4.3.	special sense, trauma to eye, ear
					3.2.5.					3.2.5.	neoplastic disorders
					3.2.5.1.					3.2.5.1.	primary (eg, meningioma, astrocytoma)
					3.2.5.2.					3.2.5.2.	metastatic
					3.2.6.				3.2.7.	3.2.6.	metabolic and regulatory disorders, including vitamin deficiencies and effects of alcohol
3.2.7.					3.2.7.					3.2.7.	vascular disorders
3.2.7.1.					3.2.7.1.				3.2.7.1.	3.2.7.1.	cerebrovascular occlusion

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3.2.7.2.					3.2.7.2.					3.2.7.2.	venous sinus thrombosis
3.2.7.3.					3.2.7.3.					3.2.7.3.	arterial aneurysms
3.2.7.4.					3.2.7.4.				3.2.7.4.	3.2.7.4.	brain hemorrhage
					3.2.8.		3.2.8.			3.2.8.	systemic disorders affecting the nervous system (eg, diabetes mellitus)
					3.2.9.					3.2.9.	degenerative disorders, including peripheral neuropathy, Alzheimer's and other dementias, Parkinson's disease, and amyotrophic lateral sclerosis
3.2.10.					3.2.10.				3.2.10.	3.2.10.	paroxysmal disorders, including pain syndromes
					3.2.10.1.					3.2.10.1.	epilepsy
3.2.10.2.					3.2.10.2.				3.2.10.2.	3.2.10.2.	headache (eg, migraine, tension)
					3.2.10.3.					3.2.10.3.	sleep disorders, narcolepsy
					3.2.11.					3.2.11.	disorders of special senses
					3.2.11.1.					3.2.11.1.	papilledema, optic atrophy, macular degeneration
					3.2.11.2.					3.2.11.2.	glaucoma, cataracts, blindness
					3.2.11.3.					3.2.11.3.	auditory and vestibular disorders, including dizziness
					3.2.11.4.					3.2.11.4.	disorders of olfaction, taste
					3.2.12.					3.2.12.	psychopathologic disorders, processes and their evaluation
					3.2.12.1.					3.2.12.1.	early-onset disorders (eg, learning disorders)
					3.2.12.2.					3.2.12.2.	disorders related to substance use
					3.2.12.3.					3.2.12.3.	schizophrenia and other psychotic disorders
					3.2.12.4.				3.2.12.4.	3.2.12.4.	mood disorders
					3.2.12.5.					3.2.12.5.	anxiety disorders
					3.2.12.6.					3.2.12.6.	somatoform disorders
					3.2.12.7.					3.2.12.7.	personality disorders
					3.2.12.8.					3.2.12.8.	physical and sexual abuse of children, adults, and elders
					3.2.12.9.					3.2.12.9.	other disorders (eg, dissociative, impulse control, posttraumatic stress disorder)
				3.3.	3.3.	3.3.	3.3.			3.3.	Principles of therapeutics
				3.3.1.	3.3.1.	3.3.1.				3.3.1.	therapeutic mechanisms of action and therapeutic effects of drugs for treatment of disorders of the nervous system

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					3.3.1.1.					3.3.1.1.	central and peripheral nervous system
					3.3.1.1.1.					3.3.1.1.1.	anesthetics
					3.3.1.1.2.					3.3.1.1.2.	hypnotics
					3.3.1.1.3.					3.3.1.1.3.	psychopharmacologic agents (eg, anxiolytics, antidepressants, antipsychotic agents, mood-stabilizer agents)
					3.3.1.1.4.					3.3.1.1.4.	anticonvulsants
					3.3.1.1.5.					3.3.1.1.5.	analgesics
					3.3.1.1.6.					3.3.1.1.6.	stimulants, amphetamines
					3.3.1.1.7.					3.3.1.1.7.	antiparkinsonian drugs
					3.3.1.1.8.					3.3.1.1.8.	skeletal muscle relaxants, botulinum toxin o neuromuscular junction blocking agents antiglaucoma drugs
					3.3.1.1.9.					3.3.1.1.9.	antimicrobial, immunosuppressive, antineoplastic, anti-inflammatory drugs
					3.3.1.1.10.	3.3.1.1.10.	3.3.1.1.10.			3.3.1.1.10.	antithrombotic drugs
					3.3.1.1.11.					3.3.1.1.11.	drugs used to decrease intracranial pressure (eg, mannitol, high-dose glucocorticoids)
					3.3.1.1.12.					3.3.1.1.12.	antimigraine agents
				3.3.1.2.	3.3.1.2.					3.3.1.2.	drugs affecting the autonomic nervous system
				3.3.1.2.1.	3.3.1.2.1.					3.3.1.2.1.	anticholinesterases
				3.3.1.2.2.	3.3.1.2.2.					3.3.1.2.2.	parasympathomimetics
				3.3.1.2.3.	3.3.1.2.3.					3.3.1.2.3.	sympathomimetics
				3.3.1.2.4.	3.3.1.2.4.					3.3.1.2.4.	postganglionic parasympathetic blocking agents q postganglionic adrenergic blocking agents ganglionic stimulating and blocking agents
					3.3.2.					3.3.2.	other therapeutic modalities (eg, radiation, CSF shunting, surgery)
					3.3.3. not newborn and elderly					3.3.3.	adverse effects of drugs (eg, glucocorticoids, neuroleptics) used in treatment of disorders of the nervous system, including special considerations related to the newborn and elderly
					3.3.4.					3.3.4.	iatrogenic effects on the nervous system (eg, INH, AZT, phenytoin)
					3.4.				3.4.	3.4.	Psychosocial, cultural, occupational, and environmental considerations

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					3.4.1.				3.4.1.	3.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, drug abuse, dementia, compliance, accident prevention, social network)
					3.4.2.				3.4.2.	3.4.2.	influence of disease and treatment on person, family, and society (eg, multiple sclerosis, cerebrovascular occlusion, developmental disabilities, Parkinson's disease, dementia, generational reversal, nutrition, seizures)
					3.4.3.					3.4.3.	occupational and other environmental risk factors for diseases of the nervous system
4.	4.							4.	4	4.	Skin and Related Connective Tissue
4.1.	4.1.							4.1.		4.1.	Normal processes
4.1.1.								4.1.1.		4.1.1.	embryonic development, fetal maturation, and perinatal changes
4.1.2.	4.1.2.							4.1.2.		4.1.2.	organ structure and function
	4.1.3.							4.1.3.		4.1.3.	cell/tissue structure and function (eg, barrier functions, thermal regulation, eccrine function)
4.1.4.								4.1.4.		4.1.4.	repair, regeneration, and changes associated with stage of life (eg, senile purpura)
								4.1.5.		4.1.5.	skin defense mechanisms and normal flora
4.2.								4.2.	4.2.	4.2.	Abnormal processes
								4.2.1.		4.2.1.	genetic disorders (eg, keloids)
								4.2.2.		4.2.2.	congenital disorders
								4.2.3.		4.2.3.	infectious, inflammatory, and immunologic disorders
								4.2.3.1.		4.2.3.1.	bacterial infections (eg, cellulitis, carbuncle, abscess, necrotizing fasciitis, gangrene)
								4.2.3.2.		4.2.3.2.	viral infections (eg, herpes infections, chickenpox, rubella, measles, roseola)
								4.2.3.3.		4.2.3.3.	fungal infections, including mycoses, dermatophytoses (eg, tinea)
								4.2.3.4.		4.2.3.4.	acne
								4.2.3.5.		4.2.3.5.	urticaria, allergic dermatoses
								4.2.3.6.		4.2.3.6.	autoimmune disorders (eg, discoid lupus erythematosus, scleroderma, dermatomyositis, alopecia, psoriasis)
4.2.4.								4.2.4.		4.2.4.	traumatic and mechanical disorders (eg, burns, lacerations, decubitus ulcers, effects of ultraviolet light and radiation)

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								4.2.5.	4.2.5.	4.2.5.	neoplastic disorders (eg, verrucae, seborrheic keratosis, actinic keratosis, basal cell carcinoma, nevi, squamous cell carcinoma, melanoma, T-lymphocyte lymphoma)
								4.2.6. ?		4.2.6.	metabolic and regulatory disorders, (eg, vitamin deficiencies, hypervitaminosis, hyperhidrosis)
								4.2.7. ?		4.2.7.	vascular disorders (eg, vasculitis, Raynaud's disease)
										4.2.8.	systemic disorders affecting the skin
								4.3.		4.3.	Principles of therapeutics
								4.3.1.		4.3.1.	mechanisms of action and therapeutic effects of drugs for treatment of disorders of the skin and connective tissue (eg, glucocorticoids, emollients, sunscreen, retinoids, antimicrobials, antineoplastic agents, keratolytics, antihistamines)
								4.3.2.		4.3.2.	other therapeutic modalities (eg, PUVA, laser, tattoo removal, cryotherapy)
								4.3.3.		4.3.3.	adverse effects of drugs used in treatment of disorders of skin, including special considerations related to the newborn and elderly
								4.3.4.		4.3.4.	iatrogenic effects on the skin (eg, drug rashes, photosensitivity)
								4.4.		4.4.	Psychosocial, cultural, occupational, and environmental considerations
								4.4.1.		4.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, sun exposure and skin cancers, acne, compliance)
								4.4.2.		4.4.2.	influence of disease and treatment on person, family, and society (eg, psoriasis)
								4.4.3.		4.4.3.	occupational and other environmental risk factors for disease of the skin and related connective tissue
5.	5.					5.			5.	5.	Musculoskeletal System
5.1.	5.1.					5.1.				5.1.	Normal processes
5.1.1.										5.1.1.	embryonic development, fetal maturation, and perinatal changes
5.1.2.										5.1.2.	organ structure and function
5.1.3.	5.1.3.									5.1.3.	cell/tissue structure and function
5.1.3.1.	5.1.3.1.									5.1.3.1.	biology of bones, joints, skeletal muscle, tendons
5.1.3.2.										5.1.3.2.	exercise and physical conditioning, age-related factors

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5.1.4.						5.1.4.				5.1.4.	repair, regeneration, and changes associated with stage of life
						5.2.			5.2.	5.2.	Abnormal processes
						5.2.1.				5.2.1.	genetic disorders (eg, muscular dystrophies)
5.2.2.						5.2.2.				5.2.2.	congenital disorders (eg, shoulder dystocia)
						5.2.3.				5.2.3.	infectious, inflammatory, and immunologic disorders (eg, rheumatoid arthritis, osteomyelitis, systemic lupus erythematosus)
5.2.4.						5.2.4.				5.2.4.	traumatic and mechanical disorders
5.2.5.						5.2.5.				5.2.5.	neoplastic disorders (eg, osteosarcoma, metastatic disease)
						5.2.6.				5.2.6.	metabolic and regulatory disorders (eg, osteomalacia, osteoporosis, gout)
						5.2.7.				5.2.7.	vascular disorders (eg, polyarteritis nodosa)
5.2.8.						5.2.8.			5.2.8.	5.2.8.	degenerative disorders (eg, disk disease, osteoarthritis)
						5.2.9.				5.2.9.	systemic disorders affecting the musculoskeletal system (eg, diabetes mellitus)
5.2.10.						5.2.10.				5.2.10.	idiopathic disorders (eg, Dupuytren's contracture, scoliosis, Pagets disease)
						5.3.				5.3.	Principles of therapeutics
						5.3.1.				5.3.1.	mechanisms of action and therapeutic effects of drugs for treatment of disorders of the musculoskeletal system (eg, NSAIDs, muscle relaxants, antigout drugs, immunosuppressives, cytotoxic agents, drugs for metabolic bone disorders)
						5.3.2.				5.3.2.	other therapeutic modalities (eg, radiation, surgery)
						5.3.3.				5.3.3.	adverse effects of drugs used in treatment of disorders of the musculoskeletal system (eg, benzodiazepines), including special considerations related to the newborn and elderly
						5.3.4.				5.3.4.	iatrogenic effects on the musculoskeletal system (eg, glucocorticoids, drug-induced rhabdomyolysis, casts and disuse atrophy)
									5.4.	5.4.	Psychosocial, cultural, occupational, and environmental considerations
									5.4.1.	5.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, diet, exercise, seat belts, bicycle helmets, bone mass, and osteoporosis)

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5.4.2.									5.4.2. ?	5.4.2.	influence of disease and treatment on person, family, and society (eg, osteoporosis, fractures in elderly, alcohol abuse and fractures, rheumatoid arthritis)
5.4.3.									5.4.3. ?	5.4.3.	occupational and other environmental risk factors for disease of the musculoskeletal system (eg, professional athletes, musicians)
6.		6.					6.		6	6.	Respiratory System
6.1.		6.1.					6.1.			6.1.	Normal processes
6.1.1.										6.1.1.	embryonic development, fetal maturation, and perinatal changes
6.1.2.		6.1.2.								6.1.2.	organ structure and function
6.1.2.1.		6.1.2.1.								6.1.2.1.	mechanics of breathing
		6.1.2.2.								6.1.2.2.	ventilation and regulation
6.1.2.3.		6.1.2.3.								6.1.2.3.	perfusion
6.1.2.4.		6.1.2.4.								6.1.2.4.	pleura and fluid formation
6.1.2.5.		6.1.2.5.								6.1.2.5.	upper airways (eg, larynx, vocal cords)
6.1.2.6.		6.1.2.6.								6.1.2.6.	trachea, bronchi
		6.1.3.								6.1.3.	cell/tissue structure and function
		6.1.3.1.								6.1.3.1.	gas exchange
		6.1.3.2.								6.1.3.2.	biochemical and endocrine functions
		6.1.4.					6.1.4.			6.1.4.	repair, regeneration, and changes associated with stage of life
							6.1.5.			6.1.5.	pulmonary defense mechanisms and normal flora
6.2.		6.2.	6.2.				6.2.		6.2.	6.2.	Abnormal processes
							6.2.1.			6.2.1.	genetic disorders (eg, cystic fibrosis, ai-antitrypsin deficiency)
6.2.2.							6.2.2.			6.2.2.	congenital disorders (eg, tracheoesophageal fistula)
6.2.3.			6.2.3.				6.2.3.			6.2.3.	infectious, inflammatory, and immunologic disorders
6.2.3.1.							6.2.3.1.			6.2.3.1.	infectious diseases of the upper and lower respiratory tracts and pleura (eg, pneumonia, tuberculosis, sinus)
							6.2.3.2.			6.2.3.2.	immunologic disorders
			6.2.3.2.1.				6.2.3.2.1.			6.2.3.2.1.	allergic and hypersensitivity disorders (eg, asthma)
			6.2.3.2.2.				6.2.3.2.2.			6.2.3.2.2.	autoimmune disorders (eg, Wegener's granulomatosis, Goodpasture's syndrome)
6.2.3.3.							6.2.3.3.			6.2.3.3.	inflammatory disorders

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							6.2.3.3.1.			6.2.3.3.1.	pneumoconioses
							6.2.3.3.2.			6.2.3.3.2.	acute and chronic alveolar injury (eg, adult respiratory distress syndrome, chlorine gas/smoke inhale)
6.2.3.3.3.							6.2.3.3.3.		6.2.3.3.3.	6.2.3.3.3.	obstructive pulmonary disease
							6.2.3.3.4.			6.2.3.3.4.	restrictive pulmonary disease (eg, sarcoidosis)
6.2.4.							6.2.4.			6.2.4.	traumatic and mechanical disorders (eg, aspiration, pneumothorax, sleep apnea)
6.2.5.							6.2.5.			6.2.5.	neoplastic disorders (eg, upper respiratory tract, pleura, lung)
6.2.5.1.							6.2.5.1.			6.2.5.1.	primary
6.2.5.2.							6.2.5.2.			6.2.5.2.	metastatic
6.2.6.		6.2.6.					6.2.6.			6.2.6.	metabolic and regulatory disorders
6.2.6.1.		6.2.6.1.					6.2.6.1.			6.2.6.1.	neonatal respiratory distress syndrome
		6.2.6.2.					6.2.6.2.			6.2.6.2.	pulmonary response to acid-base imbalance
		6.2.6.3.					6.2.6.3.			6.2.6.3.	abnormal gas exchange (eg, hypoxia, hypercarbia)
		6.2.6.4.					6.2.6.4.			6.2.6.4.	ventilation-perfusion imbalance
		6.2.6.5.					6.2.6.5.			6.2.6.5.	central hypoventilation
		6.2.6.6.					6.2.6.6.			6.2.6.6.	high-altitude sickness
6.2.7.		6.2.7.					6.2.7.			6.2.7.	vascular and circulatory disorders
6.2.7.1.		6.2.7.1.					6.2.7.1.			6.2.7.1.	thromboembolic disease
		6.2.7.2.					6.2.7.2.			6.2.7.2.	pulmonary hypertension
		6.2.7.3.					6.2.7.3.			6.2.7.3.	pulmonary edema
6.2.7.4.		6.2.7.4.					6.2.7.4.			6.2.7.4.	pleural effusion
							6.2.8.			6.2.8.	systemic disorders affecting the respiratory system
							6.2.9.			6.2.9.	idiopathic disorders (eg, bronchiectasis)
							6.3.			6.3.	Principles of therapeutics
							6.3.1.			6.3.1.	mechanisms of action and therapeutic effects of drugs used for treatment of respiratory disorders (eg, immunosuppressive agents, decongestants, cough suppressants, expectorants, mucolytics,
6.3.2.							6.3.2.			6.3.2.	other therapeutic modalities (eg, oxygen therapy, mechanical ventilation, physical therapy, surgical procedures, including transplantation)

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							6.3.3.			6.3.3.	adverse effects of drugs used in treatment of disorders of the respiratory system (eg, neonatal oxygen toxicity, complications of mechanical ventilation), including special considerations related to the newborn and elderly
6.3.4.							6.3.4.			6.3.4.	iatrogenic effects on the respiratory system (eg, beta-adrenergic blockers, nitrofurantoin, bleomycin, amiodarone, ACE inhibitors)
							6.4.		6.4. ?	6.4.	Psychosocial, cultural, occupational, and environmental considerations
6.4.1.							6.4.1.		6.4.1. ?	6.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, smoking, substance abuse, compliance, pets and allergies)
							6.4.2		6.4.2 ?	6.4.2	influence of disease and treatment on person, family, and society (eg, tuberculosis, asthma, chronic obstructive pulmonary disease, asthma, school issues, protective parents, family smoking)
6.4.3.							6.4.3.		6.4.3. ?	6.4.3.	occupational and other environmental risk factors for pulmonary disease
7.		7.					7.		7	7.	Cardiovascular System
7.1		7.1					7.1		7.1.	7.1	Normal processes
7.1.1.										7.1.1.	embryonic development, fetal maturation, and perinatal changes
7.1.2.		7.1.2.								7.1.2.	organ structure and function
7.1.2.1.		7.1.2.1.								7.1.2.1.	chambers, valves, blood vessels
		7.1.2.2.						7.1.2.2.		7.1.2.2.	cardiac cycle, mechanics, heart sounds, cardiac output
		7.1.2.3.								7.1.2.3.	hemodynamics (systemic, pulmonary, coronary) and blood volume
		7.1.2.4.								7.1.2.4.	circulation in specific vascular beds (eg, splanchnic)
7.1.3.		7.1.3.								7.1.3.	cell tissue structure and function
		7.1.3.1.								7.1.3.1.	heart muscle, metabolism, oxygen consumption, biochemistry, and secretory function (eg, atrial natriuretic peptide)
		7.1.3.2.								7.1.3.2.	endothelium and secretory function, vascular smooth muscle, microcirculation, and lymph flow
7.1.3.3.		7.1.3.3.								7.1.3.3.	neural and hormonal regulation of the heart, blood vessels, and blood volume, including responses to change in posture, exercise, and tissue metabolism
7.1.4.							7.1.4.			7.1.4.	repair, regeneration, and changes associated with stage of life

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7.1.5.							7.1.5.			7.1.5.	cardiovascular defense mechanisms
7.2.		7.2.	7.2.				7.2.		7.2.	7.2.	Abnormal processes
							7.2.1.			7.2.1.	genetic disorders
7.2.2.							7.2.2.			7.2.2.	congenital disorders
7.2.3.			7.2.3.				7.2.3.			7.2.3.	infectious, inflammatory, and immunologic disorders
7.2.3.1.			7.2.3.1.				7.2.3.1.			7.2.3.1.	infectious disorders (eg, endocarditis, myocarditis, pericarditis, arteritis, vasculitis)
			7.2.3.2.				7.2.3.2.			7.2.3.2.	Inflammatory disorders (eg, acute rheumatic fever)
			7.2.3.3.				7.2.3.3.			7.2.3.3.	immunologic disorders (eg, transplant rejection)
7.2.4.							7.2.4.			7.2.4.	traumatic and mechanical disorders (eg, tamponade, valvular disease, hypertrophic subaortic stenosis)
							7.2.5.			7.2.5.	neoplastic disorders
7.2.6.		7.2.6.					7.2.6.			7.2.6.	metabolic and regulatory disorders
7.2.6.1.		7.2.6.1.					7.2.6.1.			7.2.6.1.	dysrhythmias
7.2.6.2.		7.2.6.2.					7.2.6.2.			7.2.6.2.	systolic and diastolic dysfunction, low- and high-output heart failure, cor pulmonale
		7.2.6.3.					7.2.6.3.	7.2.6.3.		7.2.6.3.	systemic hypertension
7.2.6.4.		7.2.6.4.					7.2.6.4.			7.2.6.4.	ischemic heart disease, myocardial infarction
		7.2.6.5.					7.2.6.5.			7.2.6.5.	systemic hypotension and shock
7.2.7.		7.2.7.					7.2.7.			7.2.7.	vascular disorders (eg, aneurysms, occlusions, varicosities, atherosclerosis)
							7.2.8.			7.2.8.	systemic diseases affecting the cardiovascular system (eg, amyloidosis, hemochromatosis, scleroderma)
							7.2.9.			7.2.9.	idiopathic disorders (eg, hypertrophic and dilated cardiomyopathies)
							7.3.			7.3.	Principles of therapeutics
							7.3.1.			7.3.1.	mechanisms of action and therapeutic effects of drugs for treatment of cardiovascular disorders
							7.3.1.1.			7.3.1.1.	coronary and peripheral vasodilators
							7.3.1.2.			7.3.1.2.	antiarrhythmic drugs
							7.3.1.3.			7.3.1.3.	antihypertensive drugs
							7.3.1.4.			7.3.1.4.	measures used to combat hypotension and shock

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							7.3.1.5.			7.3.1.5.	drugs affecting cholesterol and lipid metabolism
							7.3.1.6.			7.3.1.6.	drugs affecting blood coagulation, thrombolytic agents
							7.3.1.7.			7.3.1.7.	inotropic agents and treatment of heart failure
							7.3.1.8.			7.3.1.8.	immunosuppressive and antimicrobial drugs
7.3.2.							7.3.2.			7.3.2.	other therapeutic modalities (eg, pacemakers, angioplasty, valves, grafts, other surgical procedures)
							7.3.3.			7.3.3.	adverse effects of drugs used in treatment of disorders of the cardiovascular system (eg, heart failure secondary to adriamycin), including special considerations related to the newborn and elderly
							7.3.4.			7.3.4.	iatrogenic effects of other drugs on the cardiovascular system (eg, drug-induced systemic lupus erythematosus)
7.4.							7.4.		7.4.	7.4.	Psychosocial, cultural, occupational, and environmental considerations
7.4.1.							7.4.1.		7.4.1. ?	7.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, smoking, alcohol, ischemic heart disease, obesity, exercise, diet, compliance)
							7.4.2.		7.4.2. ?	7.4.2.	influence of disease and treatment on person, family, and society (eg, altered lifestyle, transplants)
							7.4.3.		7.4.3. ?	7.4.3.	occupational and other environmental risk factors for cardiovascular disease
8.		8.					8.		8	8.	Gastrointestinal System
8.1.		8.1.					8.1.			8.1.	Normal processes
8.1.1.										8.1.1.	embryonic development, fetal maturation, and perinatal changes
8.1.2.		8.1.2.								8.1.2.	organ structure and function
8.1.2.1.		8.1.2.1.								8.1.2.1.	mouth
8.1.2.2.		8.1.2.2.								8.1.2.2.	pharynx
8.1.2.3.		8.1.2.3.								8.1.2.3.	esophagus
8.1.2.4.		8.1.2.4.								8.1.2.4.	stomach
8.1.2.5.		8.1.2.5.								8.1.2.5.	small intestine
8.1.2.6.		8.1.2.6.								8.1.2.6.	large intestine
8.1.2.7.		8.1.2.7.								8.1.2.7.	liver and biliary system
8.1.2.8.		8.1.2.8.								8.1.2.8.	pancreas

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8.1.2.9.		8.1.2.9.								8.1.2.9.	anus
8.1.2.10.		8.1.2.10.								8.1.2.10.	gastrointestinal motility, including vomiting and defecation
8.1.2.11.		8.1.2.11.								8.1.2.11.	digestion and absorption
8.1.2.12.		8.1.2.12.								8.1.2.12.	enterohepatic circulation
8.1.2.13.		8.1.2.13.								8.1.2.13.	gastrointestinal hormones
8.1.3.		8.1.3.								8.1.3.	cell/tissue structure and function
8.1.3.1.		8.1.3.1.								8.1.3.1.	endocrine and neural regulatory functions, including paracrine
8.1.3.2.		8.1.3.2.								8.1.3.2.	salivary, gastrointestinal, pancreatic, hepatic secretory products (eg, enzymes, proteins, bile salts) and processes
		8.1.3.3.								8.1.3.3.	synthetic and metabolic functions of hepatocytes
8.1.3.4.		8.1.3.4.								8.1.3.4.	function of the gall bladder and bile ducts
8.1.4.							8.1.4.			8.1.4.	repair, regeneration, and changes associated with stage of life
							8.1.5.			8.1.5.	gastrointestinal defense mechanisms and normal flora
8.2.		8.2.					8.2.	8.2.	8.2.	8.2.	Abnormal processes
8.2.1.							8.2.1.			8.2.1.	genetic disorders (eg, Wilson's disease, Hirschsprung's disease)
8.2.2.							8.2.2.			8.2.2.	congenital disorders (eg, Meckel's diverticulum, biliary atresia)
8.2.3.							8.2.3.			8.2.3.	infectious, inflammatory, and immunologic disorders
8.2.3.1.			8.2.3.1.				8.2.3.1.			8.2.3.1.	infectious disorders (eg, peritonitis, hepatitis, gingivostomatitis, peptic ulcer, gastritis, esophagitis,
		8.2.3.2.	8.2.3.2.				8.2.3.2.			8.2.3.2.	traveler's diarrhea, food poisoning)
8.2.3.3.							8.2.3.3.			8.2.3.3.	inflammatory disorders (eg, cholecystitis, pancreatitis)
							8.2.3.4.			8.2.3.4.	immunologic disorders (eg, Crohn's disease, ulcerative colitis)
8.2.4.							8.2.4.			8.2.4.	traumatic and mechanical disorders
8.2.4.1.							8.2.4.1.			8.2.4.1.	malocclusion
8.2.4.2.							8.2.4.2.			8.2.4.2.	hiatus hernia
8.2.4.3.							8.2.4.3.			8.2.4.3.	intestinal obstruction, volvulus, intussusception
							8.2.4.4.			8.2.4.4.	perforation of hollow viscus and blunt trauma
8.2.4.5.							8.2.4.5.			8.2.4.5.	inguinal, femoral, and abdominal wall hernias
8.2.4.6.							8.2.4.6.			8.2.4.6.	esophageal and colonic diverticula
8.2.5.							8.2.5.			8.2.5.	neoplastic disorders

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							8.2.5.1.			8.2.5.1.	benign (eg, polyps)
8.2.5.2.							8.2.5.2.			8.2.5.2.	malignant
8.2.6.		8.2.6.					8.2.6.		8.2.6.	8.2.6.	metabolic and regulatory disorders
8.2.6.1.		8.2.6.1.					8.2.6.1.			8.2.6.1.	motility disorders (eg, esophageal reflux, achalasia, irritable bowel syndrome, paralytic ileus)
		8.2.6.2.					8.2.6.2.			8.2.6.2.	malabsorption (eg, pancreatic insufficiency, sprue)
8.2.6.3.		8.2.6.3.					8.2.6.3.		8.2.6.3.	8.2.6.3.	hepatic failure, jaundice, encephalopathy, cirrhosis, ascites
8.2.6.4.		8.2.6.4.					8.2.6.4.			8.2.6.4.	cholelithiasis, cholestasis
8.2.6.5.							8.2.6.5.			8.2.6.5.	dyslipidemias (eg, familial hypercholesterolemia)
							8.2.7.			8.2.7.	vascular disorders (eg, ischemia, portal hypertension and esophageal varices, mesenteric thromboses, hemorrhoids)
							8.2.8.			8.2.8.	systemic disorders affecting the gastrointestinal system
							8.2.9.			8.2.9.	idiopathic disorders
		8.3.					8.3.			8.3.	Principles of therapeutics
							8.3.1.			8.3.1.	mechanisms of action and effects of drugs used for treatment of disorders of the gastrointestinal system
							8.3.1.1.			8.3.1.1.	treatment and prophylaxis of peptic ulcer disease and gastroesophageal reflux (eg, antacids, antisecretory drugs, motility drugs, mucosal protective agents, antibiotics)
							8.3.1.2.			8.3.1.2.	drugs to alter gastrointestinal motility (eg, cathartics, antidiarrheal drugs, antiemetic drugs, prokinetics)
		8.3.1.3.					8.3.1.3.			8.3.1.3.	fluid replacement
							8.3.1.4.			8.3.1.4.	pancreatic replacement therapy and treatment of pancreatitis
							8.3.1.5.			8.3.1.5.	drugs for treatment of hepatic failure (eg, lactulose for hepatic encephalopathy) and biliary disease (eg, drugs to dissolve gallstones)
							8.3.1.6.			8.3.1.6.	anti-inflammatory, immunosuppressive, antineoplastic, and antimicrobial drugs
							8.3.2.			8.3.2.	other therapeutic modalities (eg, surgical procedures, stents, feeding tubes)
							8.3.3.			8.3.3.	adverse effects of drugs used in treatment of disorders of the gastrointestinal system, including special considerations related to the newborn and elderly

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							8.3.4.			8.3.4.	iatrogenic effects of drugs used in treatment of disorders on the gastrointestinal system
							8.4.		8.4.	8.4.	Psychosocial, cultural, occupational, and environmental considerations
							8.4.1.		8.4.1. ?	8.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, peptic ulcer, encopresis, Monday morning stomach in children, compliance)
8.4.2.							8.4.2.		8.4.2. ?	8.4.2.	influence of disease and treatment on person, family, and society (eg, inflammatory bowel disease, irritable bowel disease, pancreatitis and alcohol, transplants)
							8.4.3.		8.4.3. ?	8.4.3.	occupational and other environmental risk factors for gastrointestinal disorders
9.		9.					9.		9	9.	Renal/Urinary System
9.1.		9.1.					9.1.			9.1.	Normal processes
9.1.1.										9.1.1.	embryonic development, fetal maturation, and perinatal changes
9.1.2.		9.1.2.								9.1.2.	organ structure and function
9.1.2.1.		9.1.2.1.								9.1.2.1.	kidneys, ureters, bladder, urethra
		9.1.2.2.								9.1.2.2.	glomerular filtration and hemodynamics
		9.1.2.3.								9.1.2.3.	tubular reabsorption and secretion
		9.1.2.4.								9.1.2.4.	urinary concentration and dilution
		9.1.2.5.								9.1.2.5.	renal mechanisms in acid-base balance
		9.1.2.6.								9.1.2.6.	renal mechanisms in body fluid homeostasis
9.1.2.7.		9.1.2.7.								9.1.2.7.	micturition
		9.1.3.								9.1.3.	cell/tissue structure and function
		9.1.3.1.								9.1.3.1.	renal metabolism and oxygen consumption
		9.1.3.2.								9.1.3.2.	hormones produced by the kidney
		9.1.3.3.								9.1.3.3.	hormones acting on the kidney
		9.1.3.4.								9.1.3.4.	renal transport processes and proteins
9.1.4.							9.1.4.			9.1.4.	repair, regeneration, and changes associated with stage of life
9.2.		9.2.					9.2.			9.2.	Abnormal processes
9.2.1.							9.2.1.			9.2.1.	genetic disorders (eg, Alport's disease, polycystic kidney)
9.2.2.							9.2.2.			9.2.2.	congenital disorders (eg, horseshoe kidney)

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9.2.3.							9.2.3.			9.2.3.	infectious, inflammatory, and immunologic disorders
							9.2.3.1.			9.2.3.1.	infectious disorders (eg, cystitis, urethritis, pyelonephritis, papillary necrosis)
							9.2.3.2.			9.2.3.2.	inflammatory disorders, including interstitial nephritis
							9.2.3.3.			9.2.3.3.	immunologic disorders (eg, transplant rejection, acute and chronic, IgA nephropathy)
							9.2.3.4.			9.2.3.4.	glomerular disorders (eg, nephrotic syndrome)
9.2.4.							9.2.4.			9.2.4.	traumatic and mechanical disorders (eg, obstructive uropathy)
							9.2.5.			9.2.5.	neoplastic disorders, including kidney and lower collecting system
9.2.6.		9.2.6.					9.2.6.			9.2.6.	metabolic and regulatory disorders
		9.2.6.1.					9.2.6.1.			9.2.6.1.	renal failure, acute and chronic
		9.2.6.2.					9.2.6.2.			9.2.6.2.	tubular disorders (eg, Fanconi's syndrome, renal tubular acidosis, nephrogenic diabetes insipidus)
9.2.6.3.		9.2.6.3.					9.2.6.3.			9.2.6.3.	disorders of the collecting system, including renal calculi
		9.2.7.					9.2.7.			9.2.7.	vascular disorders (eg, renal artery stenosis)
		9.2.8.					9.2.8.			9.2.8.	effects of systemic disease on the kidney (eg, diabetes mellitus, high blood pressure, systemic lupus erythematosus)
		9.3.					9.3.			9.3.	Principles of therapeutics
		9.3.1.					9.3.1.			9.3.1.	mechanisms of action and effects of drugs used for treatment of renal and urinary system disorders
		9.3.1.1.					9.3.1.1.			9.3.1.1.	diuretics, antidiuretic drugs
		9.3.1.2.					9.3.1.2.			9.3.1.2.	drugs and fluids used to treat volume, electrolyte, and acid-base disorders
					9.3.1.3.		9.3.1.3.			9.3.1.3.	drugs used to enhance renal perfusion (eg, dopamine)
							9.3.1.4.			9.3.1.4.	anti-inflammatory, antimicrobial, immunosuppressive, and antineoplastic drugs
							9.3.2.			9.3.2.	other therapeutic modalities (eg, dialysis, renal transplantation)
							9.3.3.			9.3.3.	adverse effects of drugs used in treatment of disorders of the renal/urinary system, including special considerations related to the newborn and elderly
9.3.4.							9.3.4.			9.3.4.	iatrogenic effects on the renal and urinary system (eg, radiologic contrast agents)

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9.4.							9.4.		9.4.	9.4.	Psychosocial, cultural, occupational, and environmental considerations
							9.4.1.		9.4.1. ?	9.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, drug-induced interstitial nephritis, compliance, polycystic kidney disease)
9.4.2.							9.4.2.		9.4.2. ?	9.4.2.	influence of disease and treatment on person, family, and society (eg, hemodialysis, living related kidney donation, transplants)
							9.4.3.		9.4.3. ?	9.4.3.	occupational and other environmental risk factors for renal/urinary disease (eg, heavy metals)
10.		10.						10.	10	10.	Reproductive System
10.1.		10.1.								10.1.	Normal processes
10.1.1.										10.1.1.	embryonic development, fetal maturation, and perinatal changes
10.1.2.		10.1.2.								10.1.2.	female organ structure, including ovary, fallopian tubes, uterus, vagina, vulva, breast, placenta, gestational uterus
10.1.2.1.		10.1.2.1.								10.1.2.1.	pregnancy: conception, implantation, maternal/fetal relationships and physiology, labor and delivery, the' puerperium, lactation
										10.1.2.2.	neonatal physiology
10.1.2.3.		10.1.2.3.								10.1.2.3.	puberty, menopause, climacteric
10.1.3.		10.1.3.						10.1.3.		10.1.3.	female organ function, including oogenesis, follicle development, ovulation, menstruation, menstrual cycle, corpus luteum
10.1.4.		10.1.4.						10.1.4.		10.1.4.	male organ structure, including testis, epididymis, spermatic cord, seminal vesicles, prostate, penis, puberty, climacteric
10.1.5.		10.1.5.						10.1.5.		10.1.5.	male organ function, including spermatogenesis, maturation and delivery of sperm, erection, ejaculation, semen, capacitation
10.1.6.		10.1.6.								10.1.6.	intercourse, orgasm
		10.1.7.						10.1.7.		10.1.7.	cell/tissue structure and function (metabolic, physiologic, and regulatory processes: hormone synthesis, structure, storage, secretion, regulation, transport, metabolism; hormone actions: receptors, second messengers, intracellular actions, whole-body effects)
10.1.8.										10.1.8.	repair, regeneration, and changes associated with stage of life
										10.1.9.	reproductive system defense mechanisms and normal flora
								10.2.		10.2.	Abnormal processes
10.2.1.		10.2.1.								10.2.1.	genetic disorders, (eg, Turner's syndrome, Klinefelter's syndrome)

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10.2.2.										10.2.2.	congenital disorders
10.2.3.								10.2.3.		10.2.3.	infectious, inflammatory, and immunologic disorders
10.2.3.1.			10.2.3.1.					10.2.3.1.		10.2.3.1.	infectious disorders (eg, pelvic inflammatory disease, toxic shock syndrome, breast abscess, epididymitis, sexually transmitted diseases)
								10.2.3.2.		10.2.3.2.	immunologic disorders (eg, autoimmune hypogonadism)
								10.2.3.3.		10.2.3.3.	inflammatory disorders (eg, fibrocystic disease)
10.2.4.								10.2.4.		10.2.4.	traumatic and mechanical disorders
10.2.4.1.										10.2.4.1.	female incontinence, prolapse, cystocele
10.2.4.2.								10.2.4.2.		10.2.4.2.	torsion of testis, varicocele, circumcision, phimosis
10.2.5.								10.2.5.		10.2.5.	neoplastic disorders
10.2.5.1.								10.2.5.1.		10.2.5.1.	female, including breast, vulva, vagina, cervix, endometrium, myometrium, ovary, trophoblast
10.2.5.2.								10.2.5.2.		10.2.5.2.	male, including testis, prostate, breast
								10.2.6.		10.2.6.	metabolic, physiologic, and regulatory processes
10.2.6.1.								10.2.6.1.		10.2.6.1.	female, including anovulation, infertility, polycystic ovaries, hirsutism, endometriosis, dysfunctional uterine bleeding, orgasmic dysfunction, menopausal syndrome, osteoporosis
10.2.6.2.								10.2.6.2.		10.2.6.2.	male, including oligospermia, azoospermia, abnormal sperm quality or motility, impotence, premature ejaculation, gynecomastia, benign prostatic hyperplasia
10.2.6.3.										10.2.6.3.	female and male delayed puberty, premature puberty, anorexia nervosa
										10.2.7.	systemic disorders affecting reproductive function (eg, anorexia nervosa, obesity, myotonic dystrophy, osteotic fibrous dysplasia, cirrhosis, renal failure)
10.2.8.								10.2.8.		10.2.8.	disorders relating to pregnancy, the puerperium, and the postpartum period
10.2.8.1.										10.2.8.1.	obstetric problems (eg, ectopic pregnancy, breech presentation, third-trimester bleeding)
										10.2.8.2.	complications affecting other organ systems (eg, eclampsia, gestational diabetes)
10.2.8.3.										10.2.8.3.	disorders associated with the puerperium (eg, postpartum hemorrhage, sepsis, depression)

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		10.2.8.4.						10.2.8.4.		10.2.8.4.	thyroid disorders
										10.2.8.5.	antepartum, intrapartum, postpartum disorders of the fetus (eg, prematurity, postmaturity, cord compression, macrosomia, jaundice)
								10.3.		10.3.	Principles of therapeutics
								10.3.1.		10.3.1.	therapeutic mechanisms of action and uses of drugs for treatment of disorders of the reproductive system and management of normal reproductive function
								10.3.1.1.		10.3.1.1.	female reproductive tract, including fertility drugs, oral contraception, other methods of contraception,
								10.3.1.2.		10.3.1.2.	estrogen, progestogen replacement, ovarian suppressants, stimulants and inhibitors of labor, estrogen and progesterone antagonists, treatment of menopause, stimulators and inhibitors of lactation
								10.3.1.3.		10.3.1.3.	male reproductive tract, including fertility drugs, androgen replacement, androgen antagonists, testicular
										10.3.1.4.	suppressants, restoration of potency, condoms
								10.3.1.5.		10.3.1.5.	gonadotropin-releasing hormone and gonadotropin replacement
										10.3.1.6.	abortifacients
										10.3.1.7.	antimicrobials
										10.3.1.8.	antineoplastics
								10.3.1.9.		10.3.1.9.	drugs that influence hormone action and metabolism
								10.3.2.		10.3.2.	other methods of treatment affecting the reproductive system (eg, tampons, anabolic steroids)
								10.3.3.		10.3.3.	adverse effects of drugs used in treatment of disorders of the reproductive system (eg, breast lesions, teratogens), including special considerations relating to the newborn and elderly
10.3.4.										10.3.4.	iatrogenic effects on the reproductive system
10.4.								10.4.	10.4.	10.4.	Psychosocial, cultural, occupational, and environmental considerations
								10.4.1.	10.4.1. ?	10.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, sexually transmitted diseases)
									10.4.2. ?	10.4.2.	influence of disease and treatment on person, family, and society (eg, infertility)
10.4.3.									10.4.3. ?	10.4.3.	family planning and pregnancy (eg, unwanted)

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									10.4.4. ?	10.4.4.	gender identity, sexual orientation, sexuality, libido
									10.4.5. ?	10.4.5.	effects of traumatic stress syndrome, violence, rape, child abuse
11.		11.					11.	11	11.	11.	Endocrine System
11.1.		11.1.					11.1.		11.1.	11.1.	Normal processes
11.1.1.							11.1.1.		11.1.1.	11.1.1.	embryonic development, fetal maturation, and perinatal changes
11.1.2.		11.1.2.					11.1.2.		11.1.2.	11.1.2.	organ structure and function
11.1.2.1.		11.1.2.1.					11.1.2.1.		11.1.2.1.	11.1.2.1.	hypothalamus, posterior and anterior pituitary gland
11.1.2.2.		11.1.2.2.					11.1.2.2.		11.1.2.2.	11.1.2.2.	thyroid gland
11.1.2.3.		11.1.2.3.					11.1.2.3.		11.1.2.3.	11.1.2.3.	parathyroid glands
11.1.2.4.		11.1.2.4.					11.1.2.4.		11.1.2.4.	11.1.2.4.	adrenal cortex, adrenal medulla
11.1.2.5.		11.1.2.5.					11.1.2.5.		11.1.2.5.	11.1.2.5.	pancreatic islets
11.1.2.6.		11.1.2.6.					11.1.2.6.		11.1.2.6.	11.1.2.6.	ovary and testis
		11.1.2.7.					11.1.2.7.		11.1.2.7.	11.1.2.7.	adipose tissue
		11.1.3.					11.1.3.		11.1.3.	11.1.3.	cell/tissue structure and function (eg, hormone synthesis, structure, storage, secretion, regulation, transport, and metabolism; hormone actions: receptors, second messengers, intracellular actions, whole-body effects)
		11.1.3.1.					11.1.3.1.		11.1.3.1.	11.1.3.1.	peptide hormones
		11.1.3.2.					11.1.3.2.		11.1.3.2.	11.1.3.2.	steroid hormones, including vitamin D
		11.1.3.3.					11.1.3.3.		11.1.3.3.	11.1.3.3.	thyroid hormones
		11.1.3.4.					11.1.3.4.		11.1.3.4.	11.1.3.4.	catecholamine hormones
		11.1.3.5.					11.1.3.5.	11.1.3.5.	11.1.3.5.	11.1.3.5.	renin-angiotensin system
							11.1.4.		11.1.4.	11.1.4.	repair, regeneration, and changes associated with stage of life (eg, intrauterine, puberty, and senescence)
		11.2.	11.2.				11.2.		11.2.	11.2.	Abnormal processes
		11.2.1.					11.2.1.		11.2.1.	11.2.1.	genetic disorders (eg, inborn errors of metabolism, adrenogenital syndrome)
11.2.2.		11.2.2.					11.2.2.		11.2.2.	11.2.2.	congenital disorders (eg, congenital hypothyroidism)
		11.2.3.	11.2.3.				11.2.3.		11.2.3.	11.2.3.	infectious, inflammatory, and immunologic disorders
			11.2.3.1.				11.2.3.1.		11.2.3.1.	11.2.3.1.	infectious disorders (eg, subacute thyroiditis, mumps)
		11.2.3.2.	11.2.3.2.				11.2.3.2.		11.2.3.2.	11.2.3.2.	immunologic disorders (eg, Graves' disease, Hashimoto's disease)

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								11.2.3.3.		11.2.3.3.	inflammatory disorders (eg, sarcoidosis)
								11.2.4.		11.2.4.	traumatic and mechanical disorders (eg, diabetes insipidus after head trauma)
11.2.5.		11.2.5.						11.2.5.		11.2.5.	neoplastic disorders
11.2.5.1.		11.2.5.1.						11.2.5.1.		11.2.5.1.	pituitary, functioning and nonfunctioning; craniopharyngioma
11.2.5.2.		11.2.5.2.						11.2.5.2.		11.2.5.2.	thyroid
11.2.5.3.								11.2.5.3.		11.2.5.3.	parathyroid
		11.2.5.4.						11.2.5.4.		11.2.5.4.	adrenal cortex, pheochromocytoma
		11.2.5.5.								11.2.5.5.	pancreatic islets
11.2.5.6.								11.2.5.6.		11.2.5.6.	neural crest
		11.2.6.						11.2.6.		11.2.6.	metabolic and regulatory processes
		11.2.6.1.						11.2.6.1.		11.2.6.1.	diabetes mellitus (types 1 and 2), ketoacidosis, hyperosmolar coma
		11.2.6.2.						11.2.6.2.		11.2.6.2.	pituitary, hypothalamus (eg, diabetes insipidus, syndrome of inappropriate secretion of ADH, hypopituitarism, acromegaly)
		11.2.6.3.						11.2.6.3.		11.2.6.3.	thyroid (eg, hypothyroidism, thyrotoxicosis), "euthyroid sick syndrome"
		11.2.6.4.						11.2.6.4.		11.2.6.4.	parathyroid (eg, hyperparathyroidism, hypoparathyroidism), hypocalcemia, hypercalcemia, metabolic bone disorders (eg, osteomalacia)
		11.2.6.5.						11.2.6.5.		11.2.6.5.	pancreatic islet disorders (eg, hyperinsulinism)
		11.2.6.6.						11.2.6.6.		11.2.6.6.	adrenal disorders (eg, Cushing's syndrome, adrenocortical insufficiency, hyperaldosteronism)
								11.2.6.7.		11.2.6.7.	ectopic hormone production
								11.2.6.8.		11.2.6.8.	obesity
								11.2.6.9.		11.2.6.9.	dyslipidemia
								11.2.7.		11.2.7.	vascular disorders (eg, pituitary apoplexy)
								11.2.8.		11.2.8.	systemic disorders affecting the endocrine system (eg, hemochromatosis)
								11.2.9.		11.2.9.	idiopathic disorders (eg, hirsutism)
		11.3.						11.3.		11.3.	Principles of therapeutics

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		11.3.1.						11.3.1.		11.3.1.	mechanisms of action and therapeutic effects of drugs for treatment of disorders of the endocrine system
		11.3.1.1.						11.3.1.1.		11.3.1.1.	hormones and hormone analogs
		11.3.1.2.						11.3.1.2.		11.3.1.2.	stimulators of hormone production (eg, sulfonylureas)
		11.3.1.3.						11.3.1.3.		11.3.1.3.	inhibitors of hormone production (eg, thiouracils)
		11.3.1.4.						11.3.1.4.		11.3.1.4.	hormone antagonists
								11.3.1.5.		11.3.1.5.	potentiators of hormone action (eg, thiazolidinediones, emeclocycline)
								11.3.1.6.		11.3.1.6.	antiobesity agents
								11.3.1.7.		11.3.1.7.	drugs to correct dyslipidemia
								11.3.1.8.		11.3.1.8.	drugs to correct mineral deficits (eg, magnesium, calcium, potassium, phosphates)
								11.3.2.		11.3.2.	other therapeutic modalities (eg, surgery, radiation)
								11.3.3.		11.3.3.	adverse effects of drugs used in treatment of disorders of the endocrine system, including special considerations relating to the newborn and elderly
								11.3.4.		11.3.4.	iatrogenic effects on the endocrine system
								11.4.	11.4.	11.4.	Psychosocial, cultural, occupational, and environmental considerations
								11.4.1.	11.4.1. ?	11.4.1.	influence of emotional and behavioral factors on disease prevention, progression, and treatment (eg, compliance in diabetes mellitus, blindness as a complication of diabetes)
								11.4.2.	11.4.2. ?	11.4.2.	influence of disease and treatment on person, family, and society (eg, diabetes mellitus)
								11.4.3.	11.4.3. ?	11.4.3.	occupational and other environmental risk factors for endocrine disease (eg, radiation exposure, iodine deficiency)

