

Appendix **A**

Standard Precautions

Standard precautions are the minimum infection prevention practices that apply to all patient care, regardless of the suspected or confirmed infection status of the patient, in any setting where healthcare is delivered. These practices are designed to both protect healthcare personnel (HCP) and prevent HCP from spreading infections among patients.

Standard precautions apply to (1) blood; (2) all body fluids, secretions, and excretions, except sweat, regardless of whether or not it contains visible blood; (3) nonintact skin; and (4) mucous membranes. OSHA defines other potentially infectious materials (OPIM) as the following:

- Human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids
- Any unfixed tissue or organ (other than intact skin) from a human (living or dead)
- HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV

Standard precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in healthcare facilities. Standard precautions are used for the care of all patients, regardless of their diagnosis or presumed infection status.

Standard precautions include (1) hand hygiene, (2) use of personal protective equipment (e.g., gloves, gowns, masks), (3) safe injection practices, (4) safe handling of potentially contaminated equipment or surfaces in the patient environment, and (5) respiratory hygiene/cough etiquette.

Hand Hygiene

Key situations where hand hygiene should be performed include

- before touching a patient, even if gloves will be worn

- before exiting the patient's care area after touching the patient or the patient's immediate environment
- after contact with blood, body fluids or excretions, or wound dressings
- prior to performing an aseptic task (e.g., placing an IV, preparing an injection)
- if hands will be moving from a contaminated-body site to a clean-body site during patient care
- after glove removal

Use soap and water when hands are visibly soiled (e.g., blood, body fluids) or after caring for patients with known or suspected infectious diarrhea (e.g., *Clostridium difficile*, norovirus). Otherwise, the preferred method of hand decontamination is with an alcohol-based hand rub.

Personal Protective Equipment (PPE)

Personal protective equipment (PPE) refers to a variety of barriers and respirators used alone or in combination to protect mucous membranes, airways, skin, and clothing from contact with infectious agents. Gloves, gowns, and face protection are the most common forms of PPE. The selection of PPE is based on the nature of the patient interaction and/or the likely mode(s) of transmission.

Gloves

Wear gloves (clean, nonsterile gloves are adequate) when touching blood, body fluids, secretions, excretions, and contaminated items. Put on clean gloves just before touching mucous membranes and nonintact skin. Change gloves between tasks and procedures on the same patient after contact with material that may contain a high concentration of microorganisms. Do not wear the same pair of gloves for the care of more than one patient. Do not wash gloves for the purpose of reuse. Remove gloves promptly after use, before touching noncontaminated items and environmental surfaces, and before going to another patient. Wash hands immediately to avoid transfer of microorganisms to other patients or environments.

Gowns

Wear a gown (a clean, nonsterile gown is adequate) to protect skin and to prevent soiling of clothing during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Select a gown that is appropriate for the activity and the amount of fluid likely to be encountered. Remove a soiled gown as promptly as possible and wash hands to avoid transfer of microorganisms to other patients or environments. Do not wear the same gown for the care of more than one patient.

Face Protection

Wear a mask and eye protection or a face shield to protect the mucous membranes of the eyes, nose, and mouth during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.

Depending on the patient's health status, it may be necessary for healthcare providers to wear respirators. Filtering facepiece respirators (FFR), such as N95 and KN95 masks, elastomeric facepiece respirator (EFR), or powered air-purifying respirator (PAPR) may be required by your facility.

Remove and discard all PPE before leaving the patient's room or area.

Safe Injection Practices

Injection safety includes practices intended to prevent transmission of infectious diseases between one patient and another, or between a patient and a healthcare provider during preparation and administration of parenteral medications. Although phlebotomists do not administer medications, they do use sharps. Two key recommendations of this standard are appropriate to a phlebotomist:

- Dispose of used syringes and needles at the point of use in a sharps container that is closable, puncture-resistant, and leakproof.
- Adhere to federal and state requirements for protection of HCP from exposure to bloodborne pathogens.

OSHA defines work practice controls related to the use of sharps and the prevention of transmission of bloodborne pathogens that are federal requirements. These controls require HCP to take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling

sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles. The guidelines state the following:

- Never recap used needles, or otherwise manipulate them using both hands, or use any other technique that involves directing the point of a needle toward any part of the body.
- Use either a one-handed "scoop" technique or a mechanical device designed for holding the needle sheath.
- Do not remove used needles from disposable syringes by hand and do not bend, break, or otherwise manipulate used needles by hand.
- Place used disposable syringes and needles, scalpel blades, and other sharp items in appropriate puncture-resistant containers, which are located as close as practical to the area in which the items were used.
- Place reusable syringes and needles in a puncture-resistant container for transport to the reprocessing area.

Patient Environment

Handle used patient care equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of microorganisms to other patients and environments. Ensure that reusable equipment is not used for the care of another patient until it has been cleaned and reprocessed appropriately. See that single-use items are discarded properly.

Verify that the healthcare facility has adequate procedures for the routine care, cleaning, and disinfection of environmental surfaces, beds, bedrails, bedside equipment, and other frequently touched surfaces and ensure that these procedures are being followed.

Use mouthpieces, resuscitation bags, or other ventilation devices as an alternative to mouth-to-mouth resuscitation methods in areas where the need for resuscitation is predictable.

Place a patient who contaminates the environment or who does not (or cannot be expected to) assist in maintaining appropriate hygiene or environmental control in a private room. If a private room is not available, consult with infection control professionals regarding patient placement or other alternatives.

Respiratory Hygiene/Cough Etiquette

Implement measures to contain respiratory secretions in patients and accompanying individuals who have signs and symptoms of a respiratory infection, beginning at point of entry to the facility and continuing throughout the duration of the visit.

- Post signs at entrances with instructions to patients with symptoms of respiratory infection to
 - cover their mouths/noses when coughing or sneezing
 - use and dispose of tissues
 - perform hand hygiene after hands have been in contact with respiratory secretion

- Provide tissues and no-touch receptacles for disposal of tissues.
- Provide resources for performing hand hygiene in or near waiting areas.
- Offer masks to coughing patients and other symptomatic persons upon entry to the facility.
- Provide space and encourage persons with symptoms of respiratory infections to sit as far away from others as possible. If available, facilities may wish to place these patients in a separate area while waiting for care.

Educate all healthcare personnel on the importance of infection prevention measures to contain respiratory secretions to prevent the spread of respiratory pathogens when examining and caring for patients with signs and symptoms of a respiratory infection.

Appendix

B

Transmission-Based Precautions

Transmission-based precautions (airborne precautions, droplet precautions, and contact precautions) are recommended to provide additional precautions beyond standard precautions to interrupt the transmission of pathogens in hospitals.

Transmission-based precautions can be used for patients who are known or suspected to be infected or colonized with epidemiologically important pathogens that can be transmitted by airborne or droplet transmission or by contact with dry skin or contaminated surfaces. These precautions should be used in addition to standard precautions:

- Airborne precautions are used for infections spread in small particles in the air such as chickenpox.
- Droplet precautions are used for infections spread in large droplets by coughing, talking, or sneezing such as influenza.
- Contact precautions are used for infections spread by skin-to-skin contact or contact with other surfaces such as herpes simplex virus.

Airborne precautions, droplet precautions, and contact precautions may be combined for diseases that have multiple routes of transmission. Whether used singularly or in combination, they are always implemented in addition to standard precautions.

Contact Precautions

Contact precautions are intended to prevent transmission of infectious agents, including important microorganisms, that are spread by direct or indirect contact with the patient or the patient's environment. Contact precautions are required for patients infected or colonized with multidrug-resistant organisms. Contact precautions also apply where the presence of excessive wound drainage, fecal incontinence, or other discharges from the body suggest an increased potential for extensive environmental contamination and risk of transmission. A single-patient room is preferred for patients who require contact precautions. When a single-patient room is not available, consultation with infection control personnel is recommended to assess the

various risks associated with other patient placement options (e.g., cohorting, keeping the patient with an existing roommate). In multipatient rooms, at least 3 feet of spatial separation between beds is advised to reduce the opportunities for inadvertent sharing of items between the infected/colonized patient and other patients. Healthcare personnel caring for patients on contact precautions wear a gown and gloves for all interactions that may involve contact with the patient or potentially contaminated areas in the patient's environment. Healthcare personnel don PPE before entering the patient's room and discard it before exiting the room. This is done to contain pathogens, especially those that are transmitted through environmental contamination, such as vancomycin-resistant enterococci, *C. difficile*, noroviruses, and other intestinal tract pathogens.

Droplet Precautions

Droplet precautions are intended to prevent transmission of pathogens spread through respiratory or mucous membrane contact with the respiratory secretions of an infected person. Because these pathogens do not remain infectious over long distances in a healthcare facility, special air handling and ventilation are not required to prevent droplet transmission. Infectious agents for which droplet precautions are indicated include *pertussis*, influenza virus, adenovirus, rhinovirus, *N. meningitides*, and group A *Streptococcus* (for the first 24 hours of antimicrobial therapy). A single-patient room is preferred for patients who require droplet precautions. When a single-patient room is not available, consultation with infection control personnel is recommended to assess the various risks associated with other patient placement options (e.g., cohorting, keeping the patient with an existing roommate). Spatial separation of at least 3 feet and drawing the curtain between patient beds are especially important for patients in multibed rooms with infections transmitted by the droplet route. Healthcare personnel wear a mask (a respirator is not necessary) for close contact with infectious patients; the mask is generally donned upon room entry. Patients on droplet precautions who must be transported

outside the room should wear a mask, if tolerated, and follow respiratory hygiene/cough etiquette.

Airborne Precautions

Airborne precautions prevent transmission of infectious agents that remain infectious over long distances when suspended in the air (e.g., rubeola virus [measles], varicella virus [chickenpox], *M. tuberculosis*, and SARS-CoV including COVID-19 variants). The preferred placement for patients who require airborne precautions is in an airborne infection isolation room (AIIR). An AIIR is a single-patient room that is equipped with special air handling and ventilation capacity that meet the American Institute of Architects/Facility Guidelines Institute (AIA/FGI) standards for AIIRs. Some states require the availability of such rooms in hospitals, emergency departments, and nursing homes that care for patients with *M. tuberculosis*. A respiratory protection program that includes education about use of respirators (FFRs, EFRs, and PAPRs), fit-testing, and user seal checks is required in any facility with AIIRs. In settings where airborne precautions cannot be implemented due to limited engineering resources (e.g., physician offices), masking the patient, placing the patient in a private room (e.g., office examination room) with the door closed, and providing N95 or higher-level respirators (or masks if respirators are not available for healthcare personnel) will reduce the likelihood of airborne transmission until the patient is either transferred to a facility with an AIIR or returned to the home environment, as deemed medically appropriate. Healthcare personnel caring for patients on airborne precautions wear a mask or respirator mask that is donned prior to room entry. Whenever possible, nonimmune healthcare workers should not care for patients with vaccine-preventable airborne diseases (e.g., measles, chickenpox, and smallpox).

Applications of Transmission-Based Precautions

Diagnosis of many infections requires laboratory confirmation. Because laboratory tests, especially those that depend on culture techniques, often require two or more days for completion, transmission-based precautions must be implemented while test results are pending based on the clinical presentation and likely pathogens. Use of appropriate transmission-based precautions at the time a

patient develops symptoms or signs of transmissible infection, or arrives at a healthcare facility for care, reduces transmission opportunities.

Discontinuation of Transmission-Based Precautions

Transmission-based precautions remain in effect for limited periods of time (i.e., while the risk for transmission of the infectious agent persists or for the duration of the illness). For some diseases (e.g., pharyngeal or cutaneous diphtheria, RSV), transmission-based precautions remain in effect until culture or antigen-detection test results document eradication of the pathogen and, for RSV, symptomatic disease is resolved. For other diseases (e.g., *M. tuberculosis*), state laws and regulations, and healthcare facility policies, may dictate the duration of precautions. In immunocompromised patients, viral shedding can persist for prolonged periods of time (many weeks to months) and transmission to others may occur during that time; therefore, the duration of contact and/or droplet precautions may be prolonged for many weeks.

Application of Transmission-Based Precautions in Ambulatory and Home Care Settings

Transmission-based precautions apply in all healthcare settings; however, the environment dictates changes. For example, in home care, AIIRs are not available. Typically, family members already exposed to diseases such as varicella and tuberculosis would not use masks or respiratory protection, but visiting phlebotomists or other healthcare workers would need to use such protection. Similarly, management of patients colonized or infected with multidrug-resistant organisms may necessitate contact precautions in acute care hospitals and in some long-term care facilities when there is continued transmission, but the risk of transmission in ambulatory care and home care has not been well defined. Consistent use of standard precautions is essential. In ambulatory care centers, screening for potentially infectious symptomatic and asymptomatic individuals is necessary at the start of the initial patient encounter.

Appendix

C

Prefixes, Suffixes, and Word Roots in Commonly Used Medical Terms

Prefixes

a-, an- without, not	ento- within, inner	meta- beyond
ab- from, away	epi- on, above	micro- small
ad- to, toward	erythro- red	mio- smaller, less
ambi-, amph-, amphi- both, on both sides, around	eu- good	mono- single, one
ante- before	ex-, exo- outside of, beyond, without	multi- many
antero- in front of	extra- outside of, beyond, in addition	neo- new
anti- against, opposing	fore- before, in front of	non-, not- no
auto- self	gyn-, gyno-, gyne-, gyneco- woman, female	nulli- none
bi- twice, double	hemi- half	ob- against
brachy- short	hetero- other, unlike	olig-, oligo- few, less than normal
brady- slow	homeo-, homo- same, like	ortho- straight
cata- down, lower, under	hyper- above, over, increased, excessive	oxy- sharp, acid
centi- hundred	hypo- below, under, decreased	pachy- thick
cephal- head	idio- personal, self-produced	pan- all, every
chol-, chole-, cholo- gall, bile	im-, in-, ir- not	par-, para- alongside of, with; woman who has given birth
chromo- color	in- in, into	per- through, excessive
circum- around	infra- beneath	peri- around
co-, com-, con- together, with	inter- between, among	pes- foot
contra- against	intra-, intro- into, within, during	pluri- more, several
cryo- cold	juxta- near, nearby	pneo- breathing
de- down, from	kata-, kath- down, lower, under	poly- many, much
deca- ten	kineto- motion	post- after, behind
deci- tenth	leuco-, leuko- white	pre-, pro- before, in front of
demi- half	levo- to the left	presby-, presbyo- old age
dextro- to the right	macro- large, long	primi- first
di- double, twice	mal- bad	pseudo- false
dia- through, apart, between	mega-, megalo- large, great	quadri- four
dipla-, diplo- double, twin	meio- contraction	re- back, again
dis- apart, away from	melan-, melano- black	retro- backward, behind
dys- difficult, painful, bad, abnormal	mes-, meso- middle	semi- half
e-, ec-, ecto- away, from, without, outside		steno- contracted, narrow
em-, en- in, into, inside		stereo- firm, solid, three-dimensional
endo- within, inside		sub- under

super-, supra- above, upon, excess
sym-, syn- with, together
tachy- fast
tele- distant, far
tetra- four
tomo- incision, section
trans- across
tri- three
tropho- nutrition, growth
ultra- beyond, excess
uni- one
veni- vein
xanth-, xantho- yellow

Suffixes

-ad to, toward
-aesthesia, -esthesia sensation
-al characterized by
-algia pain
-ase enzyme
-asthenia weakness
-cele swelling, tumor
-centesis puncture, tapping
-cidal killing
-cide causing death
-cise cut
-coele cavity
-cyst bladder, bag
-cyte cell, cellular
-dynia pain
-ectomy cutting out, surgical removal
-emesis vomiting
-emia blood
-esthesia sensation
-form shape
-fuge driving away
-gene-, -genic-, -genetic-, -genesis-, -genous arising from, origin, formation
-gram recorded information
-graph instrument for recording

-graphy the process of recording
-ia condition
-iasis condition of
-ic, -ical pertaining to
-ism condition, process, theory
-itis inflammation of
-ium membrane
-ize to cause to be, to become, to treat by special method
-kinesis, -kinetic motion
-lepsis, -lepsy seizure, convulsion
-lith stone
-logy science of, study of
-lysis setting free, disintegration, decomposition
-malacia abnormal softening
-mania insanity, abnormal desire
-meter measure
-metry process of measuring
-odynia pain
-oid resembling
-ole small, little
-oma tumor
-opia vision
-opsy to view
-osis disease, condition of
-ostomy to make a mouth, opening
-otomy incision, surgical cutting
-ous having
-pathy disease, suffering
-penia too few, lack, decreased
-pexy surgical fixation
-phagia, -phage eating, consuming, swallowing
-phobia fear, abnormal fear
-phylaxis protection
-plasia formation or development
-plastic molded

-plasty operation to reconstruct, surgical repair
-plegia paralysis
-pnea breathing
-rrhage, -rrhagia abnormal or excessive discharge, hemorrhage, flow
-rrhaphy suture of
-rrhea flow, discharge
-sclerosis hardening
-scope instrument used to examine
-scopy examining
-sepsis poisoning, infection
-spasm cramp or twitching
-stasis stoppage
-stomy opening
-therapy treatment
-thermy heat
-tome cutting instrument
-tomy incision, section
-tripsy surgical crushing
-trophy nutrition, growth
-tropy turning, tendency
-uria urine

Word Roots

adeno- gland, glandular
adipo- fat
aero- air
andr-, andro- man, male
angio- blood vessel
ano- anus
arterio- artery
arthro- joint
bili- bile
bio- life
blasto-, blast- developing stage, bud
bracheo- arm
broncho- bronchial (windpipe)
carcino- cancer
cardio- heart
cerebr-, cerebro- brain

cephalo- head	kera-, kerato- horn, hardness, cornea	phag-, phago- eating, consuming, swallowing
cervico- neck	lact- milk	pharyng-, pharyngo- throat, pharynx
chondro- cartilage	laparo- abdomen	phlebo- vein
chromo- color	latero- side	pleuro- side, rib
colo- colon	linguo- tongue	pneumo- air, lungs
colp-, colpo- vagina	lipo- fat	pod- foot
coro- body	lith- stone	procto- rectum
cost-, costo- rib	lobo- lobe	psych- the mind
crani-, cranio- skull	mast-, masto- breast	pulmon-, pulmono- lung
cysto- bladder, bag	med-, medi- middle	pyelo- pelvis (renal)
cyto- cell, cellular	mening- meninges (covers the brain)	pyo- pus
dacry-, dacryo- tears, lacrimal apparatus	metro-, metra- uterus	pyro- fever, heat
dactyl-, dactylo- finger, toe	my-, myo- muscle	reni-, reno- kidney
dent-, denti-, dento- teeth	myel-, myelo- marrow	rhino- nose
derma-, dermat-, dermato- skin	narco- sleep	sacchar- sugar
dorsi-, dorso- back	nas-, naso- nose	sacro- sacrum
encephalo- brain	necro- dead	salpingo- tube, fallopian tube
entero- intestine	nephr-, nephro- kidney	sarco- flesh
esthesio- sensation	neu-, neuro- nerve	sclero- hard, sclera
fibro- connective tissue	niter-, nitro- nitrogen	septi-, septic-, septico- poison, infection
galact-, galacto- milk	nucleo- nucleus	stomato- mouth
gastr-, gastro- stomach	oculo- eye	teno-, tenoto- tendon
gingiv- gums	odont- tooth	thermo- heat
glosso- tongue	omphalo- navel, umbilicus	thio- sulfa
gluco-, glyco- sugar, sweet	onco- tumor	thoraco- chest
gravid-, grvida- pregnant female	oo- ovum, egg	thrombo- blood clot
haemo-, hemato-, hem-, hemo- blood	oophor- ovary	thyro- thyroid gland
hepa-, hepar-, hepato- liver	ophthalmo- eye	tricho- hair
herni- rupture	orchid- testicle	urino-, uro- urine, urinary organs
hidro- sweat (perspiration)	os- mouth, opening	utero- uterus, uterine
histo- tissue	oste-, osteo- bone	uvulo- uvula
hydra-, hydro- water	oto- ear	vagin- vagina
hyster-, hystero- uterus	palpebro- eyelid	vaso- vessel
ictero- jaundice	path-, patho- disease, suffering	ventri-, ventro- abdomen
ileo- ileum	pedo- child	vesico- blister
karyo- nucleus, nut	pepso- digestion	

Appendix

D

Abbreviations and Symbols Commonly Used in Medical Notations

Abbreviations

a before	Ā with	DNR- do not resuscitate
āā, AA of each	Ca- calcium	DOB- date of birth
ABGs- arterial blood gases	CA cancer	Dr.- doctor
a.c.- before meals	CABG- coronary artery bypass graft	DTaP- diphtheria-tetanus-acellular pertussis vaccine
ADD- attention deficit disorder	cap, caps- capsules	DTs- delirium tremens
ad lib- as desired	CBC- complete blood (cell) count	DVT- deep venous thrombosis
ADLs- activities of daily living	C.C., CC- chief complaint	D/W- dextrose in water
ADT- admission, discharge, transfer	CDC- Centers for Disease Control and Prevention	Dx, dx- diagnosis
AED- automated external defibrillator	CHF- congestive heart failure	ECC, EKG- electrocardiogram
AIDS- acquired immunodeficiency syndrome	chr- chronic	ED- emergency department
AKA- above knee amputation	cm- centimeter	EEG- electroencephalogram
a.m.a.- against medical advice	CNS- central nervous system	EENT- eyes, ears, nose, and throat
AMA- American Medical Association	Comp, comp- compound	EP- established patient
amp.- ampule	COPD- chronic obstructive pulmonary disease	ER- emergency room
amt- amount	COVID- coronavirus disease	ESR- erythrocyte sedimentation rate
aq., AQ- water; aqueous	CP- chest pain	FBS- fasting blood sugar
ASHD- atherosclerotic heart disease	CPE- complete physical examination	FDA- Food and Drug Administration
ausc.- auscultation	CPR- cardiopulmonary resuscitation	FH- family history
ax- axis	CSF- cerebrospinal fluid	Fl, fl, fld- fluid
Bib, bib- drink	CT- computed tomography	fl oz- fluid ounce
b.i.d., bid, BID- twice a day	CV- cardiovascular	F/u- follow-up
BKA- below knee amputation	CVA- cerebrovascular accident	FUO- fever of unknown origin
BM- bowel movement	CXR- chest X-ray	Fx- fracture
BP, B/P- blood pressure	d- day	g- gram
BPC- blood pressure check	D&C- dilation and curettage	GBS- gallbladder series
BPH- benign prostatic hypertrophy	DEA- Drug Enforcement Administration	GI- gastrointestinal
bpm- beats per minute	Dil, dil- dilute	Gm, gm- gram
BSA- body surface area	dL- deciliter	gr- grain
	DM- diabetes mellitus	gt, gtt- drop, drops
		GTT- glucose tolerance test
		GU- genitourinary

GYN- gynecology	mm- millimeter	PMFSH- past medical, family, social history
HA- headache	MM- mucous membrane	PMS- premenstrual syndrome
HB, Hgb- hemoglobin	mmHg- millimeters of mercury	po- by mouth
hct- hematocrit	MRI- magnetic resonance imaging	p/o- postoperative
HEENT- head, ears, eyes, nose, throat	MS- multiple sclerosis	POMR- problem-oriented medical record
HIV- human immunodeficiency virus	NB- newborn	P&P- Pap smear (Papanicolaou smear) and pelvic examination
HO- history of	NCE- nonconforming event	p.r.n., prn, PRN- whenever necessary
HPI- history of present illness	NED- no evidence of disease	pt- pint
HPV- human papillomavirus	NIDDM- noninsulin-dependent diabetes mellitus	Pt- patient
Hx- history	NKA- no known allergies	PT- physical therapy
ICU- intensive care unit	no, #- number	PTA- prior to admission
I&D- incision and drainage	noc, noct- night	pulv- powder
ID- identification	npo, NPO- nothing by mouth	PVC- premature ventricular contraction
IDDM- insulin-dependent diabetes mellitus	NPT- new patient	q- every
IM- intramuscular	NS- normal saline	q2, q2h- every 2 hours
inf.- infusion; inferior	NSAID- nonsteroidal anti-inflammatory drug	q.a.m., qam- every morning
inj- injection	NTP- normal temperature and pressure	q.h., qh- every hour
I&O- intake and output	N&V, N/V- nausea and vomiting	qns, QNS- quantity not sufficient
IT- inhalation therapy	NYD- not yet diagnosed	qs, QS- quantity sufficient
IUD- intrauterine device	OB- obstetrics	qt- quart
IV- intravenous	OC- oral contraceptive	RA- rheumatoid arthritis; right atrium
KUB- kidneys, ureters, bladder	oint- ointment	RBC- red blood cells; red blood (cell) count
L- liter	OOB- out of bed	RDA- recommended dietary allowance, recommended daily allowance
L1, L2, etc.- lumbar vertebrae	OPD- outpatient department	REM- rapid eye movement
lab- laboratory	OPS- outpatient services	RF- rheumatoid factor
lb- pound	OR- operating room	RLE- right lower extremity (right leg)
liq- liquid	OT- occupational therapy	RLL- right lower lobe
LLE- left lower extremity (left leg)	OTC- over-the-counter	RLQ- right lower quadrant
LLL- left lower lobe	oz- ounce	R/O- rule out
LLQ- left lower quadrant	̄p after	ROM- range of motion
LMP- last menstrual period	PA- posteroanterior	ROS/SR- review of systems/ systems review
LUE- left upper extremity (left arm)	Pap- Pap smear	RPM- revolutions per minute
LUQ- left upper quadrant	Path- pathology	RUE- right upper extremity (right arm)
m- meter	p.c., pc- after meals	
M- mix (Latin <i>misce</i>)	PE- physical examination	
mcg- microgram	per- by, with	
mg- milligram	PH- past history	
MI- myocardial infarction	PICC- peripherally inserted central catheter	
mL- milliliter	PID- pelvic inflammatory disease	

RUQ- right upper quadrant
RV- right ventricle
Rx- prescription, take
̄ without
SAD- seasonal affective disorder
SARS-CoV-2- severe acute respiratory syndrome coronavirus 2
SIDS- sudden infant death syndrome
sig- sigmoidoscopy
Sig- directions
SL- sublingual
SOAP- subjective, objective, assessment, plan
SOB- shortness of breath
sol- solution
S/R- suture removal
Staph- staphylococcus
stat, STAT- immediately
STI- sexually transmitted infection
Strep- streptococcus
subcu, subcut- subcutaneous
subling- sublingual
surg- surgery
S/W- saline in water
SX- symptoms
T1, T2, etc.- thoracic vertebrae
T&A- tonsillectomy and adenoidectomy
tab- tablet
TB- tuberculosis
tbs., tbsp- tablespoon
TIA- transient ischemic attack
t.i.d., tid, TID- three times a day
tinc, tinct, tr- tincture
TMJ- temporomandibular joint
top- topically
TPR- temperature, pulse, and respiration
TSH- thyroid stimulating hormone

tsp- teaspoon
Tx- treatment
U- unit
UA- urinalysis
UCHD- usual childhood diseases
UGI- upper gastrointestinal
ung, ungt- ointment
URI- upper respiratory infection
US- ultrasound
UTI- urinary tract infection
VAD- vascular access device
VA- visual acuity
VD- venereal disease
VF- visual field
VS- vital signs
WBC- white blood cells; white blood (cell) count
WNL- within normal limits
wt- weight
y/o- year old

Symbols

Weights and Measures

#- pounds
° degrees
' foot; minute
" inch; second
mEq- milliequivalent
mL- milliliter
dL- deciliter
mg%- milligrams percent; milligrams per 100 mL

Mathematical Functions and Terms

#- number
+ - plus; positive; acid reaction
- minus; negative; alkaline reaction
± plus or minus; either positive or negative; indefinite
× multiply; magnification; crossed with, hybrid
÷, / divided by

= equal to
≈ approximately equal to
> greater than; from which is derived
< less than; derived from
⩾ not less than
⩽ not greater than
≤ equal to or less than
≥ equal to or greater than
≠ not equal to
√ square root
∛ cube root
∞ infinity
: ratio; "is to"
∴ therefore
% percent
π pi (3.14159)—the ratio of circumference of a circle to its diameter

Chemical Notations

Δ change; heat
⇌ reversible reaction
↑ increase
↓ decrease

Warnings

Ⓒ Schedule I controlled substance
Ⓒ Schedule II controlled substance
Ⓒ Schedule III controlled substance
Ⓒ Schedule IV controlled substance
Ⓒ Schedule V controlled substance

☠ poison
☢ radiation
☣ biohazard

Others

Rx prescription; take
□, ♂ male
○, ♀ female
† one
‡ two
‡‡ three

Appendix

E

Medical Laboratory Tests

TABLE E-1 Alphabetical Listing of Blood Tests (partial list)

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
ABO group & Rh type	ABO&Rh	EDTA; special patient identification and banding		Blood Bank
Acetone		SST, keep on ice		Chemistry
Acid-fast bacillus (in blood culture)	AFB	Blood culture bottles, or yellow-SPS tubes		Microbiology
Acid phosphatase (prostatic form)	ACP	SST or nonadditive; centrifuge, separate, and freeze		Chemistry
Adrenocorticotrophic hormone	ACTH	EDTA; centrifuge, separate, and freeze		Chemistry
Alanine transferase	ALT	SST or PST; centrifuge, separate, and refrigerate		Chemistry
Albumin	Alb	SST or PST; centrifuge, separate, and refrigerate		Chemistry
Alcohol	ETOH	Oxalate, heparin, SST, EDTA, or nonadditive; no alcohol prep, keep on ice		Chemistry or Toxicology
Aldolase		SST; centrifuge, separate, and refrigerate		Chemistry
Aldosterone	Aldo	Nonadditive; centrifuge, separate, and refrigerate; patient must be "up-right" for at least 1/2 hour prior to collection		Chemistry
Alkaline phosphatase	ALP	PST or SST; centrifuge, separate; fasting specimen		Chemistry
Alpha-fetoprotein	AFP	SST; centrifuge, separate		Chemistry
Aluminum	Al	Trace-element-free (nonadditive or EDTA)		Chemistry
Ammonia	NH ₃	PST; transport on ice; separate and refrigerate		Chemistry
Amylase	Amy	PST or SST; centrifuge, separate, and refrigerate		Chemistry
Antidiuretic hormone	ADH	EDTA; centrifuge, separate, and freeze		Chemistry

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Antinuclear antibodies	ANA	SST; centrifuge, separate, and refrigerate		Immunology
Antistreptolysin	ASO	PST or SST; centrifuge, separate, and refrigerate	 	Immunology
Antithrombin	AT-III	Citrate; centrifuge, separate, and freeze		Coagulation
Apolipoprotein		PST or SST; centrifuge, separate, and freeze; fasting specimen	 	Chemistry
Arterial blood gases	ABGs	Heparin or heparinized syringe; transport on ice		Chemistry
Aspartate aminotransferase	AST	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Basic metabolic profile	BMP	PST or SST; centrifuge, separate; fasting specimen	 	Chemistry
Beta human chorionic gonadotropin	Beta hCG	PST or SST; centrifuge, separate	 	Chemistry
Beta-type natriuretic protein	BNP	EDTA; separate and freeze		Chemistry
Bilirubin – direct Bili – total Bili	Bili	PST or SST; centrifuge, separate, and refrigerate; protect from light	 	Chemistry
Blood culture – aerobic – anaerobic	BC	Blood culture bottles, or yellow-SPS tubes		Microbiology
Blood urea nitrogen	BUN	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Cadmium	Cd	Trace-element-free EDTA		Chemistry
Calcitonin		Nonadditive; centrifuge, separate, freeze; fasting specimen		Chemistry
Calcium	Ca	PST or SST; centrifuge, refrigerate	 	Chemistry
Carbon monoxide	CO	EDTA; refrigerate; tube must be full		Chemistry
Carcinoembryonic antigens	CEA	SST; centrifuge, separate, and refrigerate		Chemistry
Carcinogenic antigen	Ca 125	PST or SST; centrifuge, separate, and refrigerate; freeze if testing is delayed	 	Chemistry
Carotene, beta		SST; centrifuge, separate, and freeze; protect from light		Chemistry
Ceruloplasmin		PST or SST; centrifuge, separate, and freeze; fasting specimen	 	Chemistry

TABLE E-1 Alphabetical Listing of Blood Tests (partial list) (Continued)

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Chlamydia antibodies		SST; centrifuge, separate, and refrigerate		Immunology
Cholesterol, total – HDL – LDL – VLDL	Chol	PST or SST; centrifuge, separate, and refrigerate; fasting specimen	 	Chemistry
Chromium	Cr	Trace-element-free (nonadditive); centrifuge, separate, and refrigerate		Chemistry
Cluster of differentiation (Flow cytometry)	CD markers (Flow)	Heparin or EDTA; transport immediately	 	Special Hematology
Cold agglutinins		EDTA; keep warm and place in laboratory water bath 37°C	 	Immunology or Blood Bank
Complement	C1–C8	PST; centrifuge, separate, and refrigerate		Immunology
Complete blood count – WBC – RBC – Hgb – Hct – MCV – MCH – MCHC – Platelets	CBC	EDTA; Hgb and Hct may be ordered separately; platelet count may be ordered separately; CBC may include differential	 	Hematology
Copper	Cu	Trace-element-free (nonadditive or EDTA); centrifuge, separate into copper-free transfer tube, and refrigerate		Chemistry or Toxicology
Cortisol		PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
C-reactive protein	CRP	PST or SST; centrifuge, separate, and refrigerate	 	Immunology
Creatine kinase, total – CK-BB – CK-MB – CK-MM	CK	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Creatinine	Creat	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Cryoglobulin		Clot activator or SST; centrifuge, separate; keep warm	 	Chemistry
Cystic fibrosis gene mutation		EDTA; refrigerate, <i>do not</i> separate	 	Molecular
Cyclosporine		EDTA; centrifuge, separate, and refrigerate	 	Chemistry

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Cytomegalovirus	CMV	EDTA; centrifuge, separate, and freeze	 	Microbiology
D-Dimer	D-Di	Citrate; centrifuge, separate, and freeze		Coagulation
Dehydroepiandrosterone	DHEA	SST; centrifuge, separate, refrigerate; 6:00–10:00 a.m. draw		Chemistry
Differential – % WBC types – RBC morphology – Platelet estimate	Diff	EDTA or blood smears		Hematology
Direct antiglobulin test	DAT, Coombs	EDTA; special patient identification and banding	 	Blood Bank
Disseminated intravascular coagulation panel	DIC	Citrate; centrifuge, separate, and freeze		Coagulation
Drug monitoring – Amikacin – Barbiturates – Carbamazepine – Digoxin – Gentamicin – Lithium – Phenytoin – Salicylates – Theophylline – Tobramycin – Vancomycin	TDM	SST; centrifuge, separate; indicate peak or trough level if appropriate		Chemistry
Electrolytes – sodium – potassium – chloride – carbon dioxide	Lytes – Na – K – Cl – CO ₂	PST or SST; centrifuge, separate, and refrigerate; each test may be ordered separately	 	Chemistry
Eosinophil count	Eos	EDTA; included in CBC with differential		Hematology
Epstein-Barr	EBV	SST; centrifuge, separate, and refrigerate		Immunology
Erythrocyte sedimentation rate	ESR	EDTA, citrate, or special black dependent on method	 	Hematology
Estradiol		PST; centrifuge, separate, and refrigerate		Chemistry
Estrogen		EDTA; centrifuge, separate, and refrigerate		Chemistry
Factor assays		Citrate; centrifuge, separate, and freeze		Coagulation
Factor V Leiden	FVL	EDTA or citrate	 	Molecular or Coagulation
Febrile agglutinin		SST; centrifuge, separate, and refrigerate		Immunology

TABLE E-1 Alphabetical Listing of Blood Tests (partial list) (Continued)

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Ferritin		PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Fibrin degradation/split products	FDP/FSP	Special light blue or black dependent on kit; contains thrombin and trypsin		Coagulation
Fibrinogen	Fibr	Citrate		Coagulation
Fluorescent treponemal antibody	FTA-ABS	Clot activator or SST; centrifuge, separate, and refrigerate	 	Immunology
Folate (RBC)		EDTA; refrigerate		Chemistry
Folate (serum)		PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Follicle stimulating hormone	FSH	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Gamma-glutamyl transferase	GGT	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Gastrin		SST; centrifuge, separate, and freeze; fasting specimen		Chemistry
Glucose (fasting)	Glu, FBS	Fluoride, PST or SST; centrifuge, separate, and refrigerate	  	Chemistry
Glucose-6-phosphate dehydrogenase	G-6-PD	EDTA, heparin or ACD; refrigerate	   	Chemistry
Glucose tolerance test	GTT	Fluoride; centrifuge, separate, and refrigerate		Chemistry
Glycosylated hemoglobin	Hgb A1c	EDTA; refrigerate		Chemistry
Growth hormone	GH	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Haptoglobin	Hapt	Mint or gold; centrifuge, separate, and refrigerate	 	Chemistry
Hemoglobin electrophoresis	HBEP	EDTA; refrigerate	 	Hematology
Hepatitis A virus	HAV	PST or SST; centrifuge, separate, and refrigerate	 	Immunology
Hepatitis B surface antibody	HBsAb	PST or SST; centrifuge, separate, and refrigerate	 	Immunology
Herpes Antibody		PST or SST	 	Immunology
Histamine	Hist	Heparin or EDTA; centrifuge, separate, and freeze	 	Chemistry

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Homocystine		EDTA; centrifuge, separate, and refrigerate		Chemistry
Human chorionic gonadotropin	HCG	Heparin; centrifuge, separate, and refrigerate		Chemistry
Human immunodeficiency virus	HIV	EDTA; centrifuge, separate, and refrigerate		Immunology
Human leukocyte	HLA	ACD		Blood Bank
<i>Helicobacter pylori</i> antibodies	Hpylor-ABS	SST, EDTA, or heparin; centrifuge, separate, and refrigerate	  	Immunology
Immunoglobulins – IgA – IgD – IgE – IgG – IgM	Ig	SST; centrifuge, separate, and refrigerate		Chemistry
Insulin		SST or EDTA; centrifuge, separate, and refrigerate	 	Chemistry
Iron and total iron binding capacity	Fe & TIBC	PST or SST; centrifuge, separate, and refrigerate; fasting specimen preferred	 	Chemistry
Kleihauer-Betke		EDTA; refrigerate		Blood Bank or Hematology
Lactate dehydrogenase	LD	SST; centrifuge, separate, and refrigerate		Chemistry
Lactic acid	LA	Fluoride; transport on ice; no tourniquet draw		Chemistry
Lead	Pb	Lead-free or trace-element-free (EDTA)	 	Chemistry or Toxicology
Leukocyte alkaline phosphatase/neutrophil alkaline phosphatase	LAP or NAP	Heparin		Hematology
Lipase	Lip	SST; centrifuge, separate, and refrigerate		Chemistry
Magnesium	Mg	SST; centrifuge, separate, and refrigerate		Chemistry
Malaria		EDTA or thick and thin blood smears		Microbiology
Methylenetetrahydrofolate reductase gene mutation	MTHFR	EDTA or citrate	 	Molecular or Coagulation
Mononucleosis screen	Mono or Monospot	SST; centrifuge, separate, and refrigerate		Immunology
Myoglobin	Myo	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry
Partial thromboplastin time (activated)	PTT/APTT	Citrate; centrifuge, separate, and freeze		Coagulation

TABLE E-1 Alphabetical Listing of Blood Tests (partial list) (Continued)

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Phenylketonuria	PKU	Collect on special test paper		Chemistry
Phosphorus, Phosphate	P, PO ₄	SST; centrifuge, separate, room temperature		Chemistry
Plasminogen		Citrate; centrifuge, separate, and freeze		Coagulation
Platelet aggregation	Plat Agg	Citrate; <i>do not</i> centrifuge or freeze		Coagulation
Platelet function assay	PFA	Citrate (must collect discard tube first)		Coagulation
Platelet response (aspirin or Plavix)		Citrate (must collect discard tube first)		Coagulation
Prostatic specific antigen	PSA	SST; centrifuge, separate, and freeze		Chemistry
Prothrombin gene mutation	PGM	EDTA or citrate	 	Molecular or Coagulation
Prothrombin time	PT	Citrate; centrifuge, separate, and freeze		Coagulation
Rapid plasmin reagin	RPR	SST; centrifuge, separate, and refrigerate		Immunology
Renin		EDTA; centrifuge, separate, and freeze; collect between 8 and 10 a.m. after 2 hours of upright position	 	Chemistry
Reticulocyte count	Retic	EDTA		Hematology
Rheumatoid factor	RF	SST; centrifuge, separate, and refrigerate		Immunology
Rh immune globulin	Rhogam	EDTA; special patient identification and banding	 	Blood Bank
Rubella		SST; centrifuge, separate, and refrigerate		Chemistry
Rubeola		SST; centrifuge, separate, and refrigerate		Chemistry
Salicylate		Nonadditive; centrifuge, separate, and refrigerate		Chemistry or Toxicology
SARS-CoV2 Antibody		PST or SST	 	Immunology
Serotonin		SST; centrifuge, separate, and freeze within 1 hour		Chemistry
Serum protein electrophoresis	SPE	SST; centrifuge, separate, and refrigerate		Chemistry
Sickle cell screen	Sickle	EDTA		Hematology
Testosterone	Test	PST or SST; centrifuge, separate, and refrigerate	 	Chemistry

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Tube Cap Colors (BD product)	Laboratory Section
Thyroid profile – Triiodothyronine – Thyroxine – Thyroid stimulating hormone	T3 T4 TSH	SST; centrifuge, separate, and refrigerate		Chemistry
Transferrin		SST; centrifuge, separate, and refrigerate		Chemistry
Triglycerides	Trig	SST; centrifuge, separate, and refrigerate; fasting specimen		Chemistry
Troponin	Tn	PST; centrifuge, separate, and refrigerate		Chemistry
Uric acid	Uric	SST; centrifuge, separate, and refrigerate		Chemistry
Vitamins – Vitamin A – Vitamin B ₁₂ – Vitamin D – Vitamin K	Vit A Vit B ₁₂ Vit D Vit K	SST; centrifuge, separate, and refrigerate		Chemistry
von Willebrand factor – activity – antigen – multimers		Citrate; centrifuge, separate, and freeze		Coagulation
West Nile virus	WNV	SST; centrifuge, separate, and refrigerate		Chemistry
White blood cell count	WBC	EDTA		Hematology
Zinc (RBC)	ZNRBC	Trace-element-free (EDTA); centrifuge, separate, and refrigerate		Chemistry
Zinc (serum)	Zn	Trace-element-free (nonadditive); centrifuge, separate, and refrigerate		Chemistry

TABLE E-2 Alphabetical Listing of Non-Blood Tests (partial list)

Lab Test	Abbreviation (may vary by laboratory)	Specimen Requirement (specimen requirements vary by laboratory method)	Laboratory Section
Body fluid cell counts	BF Cell Cnt	Body fluid (CSF, serous, synovial, etc.) in appropriate container; transport STAT	Hematology
Body fluid chemistry	BF Chem	Body fluid (CSF, serous, synovial, etc.) in appropriate container; transport STAT	Chemistry
Body fluid cultures	BF Cult	Body fluid (CSF, serous, synovial, etc.) in sterile container; transport immediately	Microbiology
Culture and sensitivity	C&S	Culture swab appropriate for tissue being cultured; transport STAT	Microbiology
DNA test for chlamydia and gonorrhea	CT/GC	Culture swab appropriate for tissue being cultured; transport STAT	Molecular or Microbiology
Human papillomavirus	HPV	Cervix sample or other tissue	Molecular, Immunology, or Microbiology
Influenza	Flu	Nasopharyngeal swab	Immunology, or Microbiology
Occult blood		Stool specimen	Hematology or Microbiology
Ova, cysts, and/or parasites	O&P or OCP	Stool specimen	Microbiology
Respiratory Syncytial Virus	RSV	Nasopharyngeal swab	Immunology or Microbiology
SARS-CoV2	COVID-19	Dual Nares swab, Nasopharyngeal swab	Immunology or Microbiology
Severe Acute Respiratory Syndrome	SARS, COVID (plus others)	Nasopharyngeal swab	Immunology or Microbiology
Sputum for tuberculosis		Early morning sample	Microbiology
<i>Streptococcus</i> screen	Strep Screen	Throat culture swab; transport STAT	Immunology or Microbiology
Urinalysis	UA	Urine in appropriate container	Urinalysis
Vaginosis Panel	Vag Panel	Vaginal swab	Microbiology

Glossary

24-hour collection Specimen collection procedure that requires patients to collect urine for a 24-hour period of time.

A

A1c Glycosylated hemoglobin test, which reflects the control of glucose levels over the previous few weeks. Also known as HbA1c.

abdominopelvic cavity Body cavity containing the abdominal organs: stomach, small and large intestines, gallbladder, liver, spleen, kidneys, and pancreas, and the pelvic organs: bladder and internal reproductive organs.

accession number Sequential number assigned in the order received.

acculturation Changes made by minorities in response to the dominant culture.

accuracy Achieving complete correctness or acceptable measures as close as possible to the true value.

acid citrate dextrose (ACD) Additive that maintains red cell viability.

additive Substance, such as an anticoagulant, an antiglycolytic agent, a separator gel, a cell preservative, or a clot activator, added to a blood collection tube.

additive-to-blood ratio Balance between the amount of additive or anticoagulant and the amount of blood.

aerobic Microorganism that can live and grow in the presence of oxygen or air.

aerosol Fine mist of substances or particles suspended in a gas or the air.

agglutination Clumping of red blood cells that occurs from the binding of antibodies and antigens.

airborne transmission Spread of disease by small particles carried through the air.

aliquoting Dividing or separating samples into separate containers.

ambulatory Walking about.

American Medical Technologists (AMT) Organization that provides certification to phlebotomy personnel and approves phlebotomy programs.

anaerobic Microorganism that can live and grow in the absence of oxygen or air.

analyte Substance undergoing analysis, such as glucose or cholesterol.

anatomical position Body facing forward with the arms at the sides and the palms of the hands facing forward.

anatomy Study of the structure of the body.

antecubital fossa Area in the middle of the arm, in front of the elbow, that houses the veins most commonly used for venipuncture.

anterior Toward the front of the body.

antibiotic removal device (ARD) A special resin designed to remove antibiotics from a patient's bloodstream in order to

increase the chances of recovering microorganisms in the blood culture.

antibodies Complex protein substance produced in the presence of foreign substances, such as bacteria, viruses, lipids, or carbohydrates, in order to protect the body.

anticoagulant Agent that prevents blood from clotting.

antigen Substance that causes the formation of an antibody when introduced into blood or tissue.

antiglycolytic Glucose preservative found in some blood collection tubes.

antiseptic Germicidal solution used to clean the skin prior to venipuncture or dermal (capillary) puncture.

aorta Largest artery in the body.

arterial puncture The procedure used to obtain blood samples from the artery.

arteriole Smaller branch of an artery; a miniature artery.

artery Blood vessel that carries blood from the heart to the tissues.

ASAP Abbreviation for "as soon as possible."

aseptic Pertaining to a condition that is free of disease-producing microorganisms (germs).

assault Unlawful act of threatening or causing a person to experience fear.

assigned protection factor (APF) Number assigned to indicate the amount of protection from microorganism particles of a respirator. For example, 10 indicates that there are one-tenth the number of particles inside the respirator as compared to air outside the respirator.

atoms Simplest units of all matter.

atrium (plural: atria) One of two top chambers of the heart, known as the holding chambers.

attribute Defining quality or personal characteristic.

audit Review of records and documents.

autoantibody Immunoglobulin created in response to damaged antigens on the surface of one's own blood or body cells.

autoimmune disease A disease in which the body fights against itself.

autologous Pertaining to oneself, as in donating blood for self-use.

B

B lymphocyte (B-cell) Type of lymphocyte that produces antibodies upon stimulation.

bacteremia Presence of bacteria in the blood.

bacteriostatic Substance that is capable of inhibiting the growth of bacteria.

basal state Metabolic condition after 12 hours of fasting and lack of exercise.

basilic vein Vein, used for venipuncture, that is not well anchored and tends to roll.

basophil Least numerous type of leukocytes; the granules are large and stain dark blue from basic dyes and often obscure the nucleus.

battery Unlawful use of physical force or contact toward another individual.

bedside manner Behavior that puts a patient at ease while healthcare personnel perform a procedure.

bevel Point of the needle that has been cut on a slant for ease of entry.

biconcave Having two concave sides.

biohazard Risk associated with exposure to biological substances that can threaten human health.

biotinidase Enzyme that breaks down the vitamin biotin.

blood type Description, based on the ABO classification system, of the presence of specific antigens on the surface of red blood cells.

bloodborne pathogens Disease-causing organisms that are carried in the blood.

Bloodborne Pathogens Standard Federal guidelines developed by OSHA, specifying practices that ensure safe handling of specimens that may contain pathogens.

Body mechanics Positions and movements used to maintain proper posture and to avoid muscle and bone injury.

brachial Pertaining to the arm.

burnout Result of prolonged periods of stress without relief.

C

calcaneus Heel bone in the foot.

calibration Comparison of a known constant to the test equipment reading or measurement.

cannula Hollow tube used for temporary access to a vein or an artery to administer medication or draw blood.

capillary Smallest of all blood vessels, which allow the exchange of nutrients and oxygen between the cells and blood; capillaries connect arteries to veins.

capillary action Process in which blood automatically flows into a thin tube.

cardiovascular system Body system of organs that work to circulate blood throughout the body.

catheter Medically approved tube that can be inserted in the body to treat diseases, perform a surgical procedure, or collect specimens.

caudal Toward the feet.

cells Smallest living units in the body.

Centers for Disease Control and Prevention (CDC) Federal agency responsible for identifying, monitoring, and reporting diseases, especially infectious diseases capable of becoming widespread or epidemic.

Centers for Medicare & Medicaid Services (CMS) Federal agency that established regulations to implement CLIA '88 and COLA.

centrifugation Process of separating components of a specimen using a centrifuge.

centrifuging The act of using the centrifuge.

cephalic vein Vein, used for venipuncture, that may be difficult to palpate.

Certificate of Waiver Certification that allows laboratories to perform waived testing.

certification Process that ensures successful completion of defined academic and training requirements.

chain of custody Protocol that must be strictly followed and documented for specimen accountability.

chain of infection Six steps (links) that must take place for infection to occur (reservoir, infectious agent, portal of exit, mode of transmission, portal of entry, and susceptible host).

chemical hazard Contamination of an area with harmful or potentially harmful chemicals.

chemical hygiene plan A plan that specifies practices to ensure safe handling of chemicals.

citrate Additive, usually sodium citrate, that prevents coagulation by binding calcium.

CLAS standards A set of standards that attempt to help eliminate misunderstandings in healthcare interactions, improve patient compliance, and eliminate healthcare disparities. Also known as *National Standards for Culturally and Linguistically Appropriate Services in Health and Health Care*.

clean-catch midstream specimen Urine collection procedure for culture, which requires skin cleansing and collection of the mid-portion of the urine stream.

Clinical and Laboratory Standards Institute

(CLSI) Nonprofit organization that sets recommendations, guidelines, or standards for all areas of the laboratory to improve the quality of medical care.

clinical chemistry Evaluation of chemical constituents that normally occur in the human body, such as glucose, sodium, and potassium.

Clinical Laboratory Improvement Advisory Committee

(CLIA) A committee that provides scientific and technical advice and guidance to the Department of Health and Human Services (HHS) that pertain to issues related to improvement in clinical laboratory quality and laboratory medicine practice as well as the specific questions related to CLIA standards.

Clinical Laboratory Improvement Amendments (CLIA '88)

Federal legislation that became effective in 1992; it mandates that all laboratories be regulated using the same standards, regardless of size, type, or location.

clot activator An additive that speeds up the clotting of blood in a collection tube.

coagulation Cessation of bleeding; clot formation.

code of ethics A statement adopted by a profession that states the expected professional and personal conduct of its members.

cold agglutinin Antibody present in certain disease conditions, such as primary atypical pneumonia; located on the surface of the red blood cells, and at temperatures lower than normal body temperature they cause the blood cells to clump together.

collapsed vein An abnormal retraction of the vessel walls, stopping blood flow.

College of American Pathologists (CAP) Agency that accredits medical laboratories.

combining vowel Vowel placed between a word root and a suffix to make pronunciation easier.

Commission on Office Laboratory Accreditation (COLA) Agency that accredits physician office laboratories.

competency assessment Method of documenting an employee's ability to perform assigned tasks correctly.

concentric circles Circular motion starting from the center and moving outward in ever-widening, even circles.

confidentiality Privacy regarding patient information.

congenital A disorder or disease existing at birth.

contact transmission Spread of disease through physical transfer of pathogens from reservoir to susceptible host (person).

continence Abstinence (used in reference to sexual activity).

continuing education Education that occurs after professional training in order to enhance skills.

continuous quality improvement (CQI) Another term for quality assessment and process improvement.

control material A liquid or cellular material or substance with a known range of analyte values used for performing equipment system checks.

coronal Toward the head.

corrective action Steps to remedy a problem.

cranial Pertaining to the brain.

cross-trained Being trained to perform multiple tasks.

culture (1) Specific ethnic, religious, or socioeconomic background; (2) growing microorganisms under controlled conditions (verb); groups of microorganisms that are grown under controlled conditions (noun).

culture media Material added to blood collection tubes that enhances the growth of microorganisms.

cystic fibrosis Systemic disorder that causes particular damage to the respiratory and digestive systems.

cytology Study of human cells for the presence of cancer.

cytoplasm Area of the cell outside the nucleus.

D

deep Internally away from the surface of the body.

delta check Amount of change in patient results from one time to the next.

deoxygenated Presence of a larger quantity of carbon dioxide than oxygen.

deoxyribonucleic acid (DNA) Genetic code that contains all the information needed for body processes.

Department of Health and Human Services (HHS) Federal agency that oversees the Centers for Medicare & Medicaid Services (CMS).

dermal (capillary) puncture Use of a sharp device to make an incision into the skin for the collection of small amounts of blood.

diabetes mellitus Any of several related endocrine disorders characterized by an elevated level of glucose in the blood, caused by a deficiency of insulin or insulin resistance at the cellular level.

diapedesis Process by which certain white blood cells can exit the capillaries and enter the tissues in response to pathogens.

diaphragm Muscle that separates the thoracic and abdominopelvic cavities.

differential Hematology test that is a microscopic examination of a monolayer stained blood smear; indicates the percentage of different types of white blood cells, the number of both platelets and white blood cells, red blood cell size and shape, and any other blood abnormalities, such as leukemia.

digestive system Body system that takes in and digests food, absorbs nutrients, and removes solid waste.

dipstick test Plastic strip with reagent pads containing chemicals for urine or blood testing.

distal Away from the point of attachment or farther from the trunk of the body.

diurnal variation Normal changes in laboratory values throughout the day.

diversity Variation of a category.

dorsal Pertaining to the backside.

double-bagging Enclosing contaminated equipment in a biohazard bag and placing that bag within a second biohazard bag.

droplet transmission Spread of disease through droplets propelled short distances.

E

ecchymosis Discoloration or bruising caused by the seeping of blood underneath the skin.

edematous Marked by edema; the result of swelling due to fluid accumulation.

elastomeric facepiece respiratory (EFR) Specialized PPE to be worn when caring for patients with or with the potential for respiratory illnesses or contagious diseases.

electrical hazard Contact with electrical equipment or the failure of equipment that creates a dangerous condition.

electrolytes Positively or negatively charged particles released from some substances when they are mixed with water.

electronic health record (EHR) Medical information stored in computerized formats.

electronic medical record (EMR) Another term used to describe computerized documents.

emergency preparedness Readiness for response during times of crisis.

endocrine system The body system that regulates body functions by releasing hormones into the bloodstream.

Environmental Protection Agency (EPA) Ensures that healthcare providers follow the Medical Waste Tracking Act.

eosinophil Leukocyte whose granules stain bright orange-red from eosin; aids the body in fighting parasites and numbers increase in allergies.

ergonomics The practice of adapting the job task or equipment so that you can perform the task safely and productively.

erythrocyte Red blood cell; a nuclear, biconcave disk-shaped blood cell that is responsible for transporting oxygen.

erythrocyte sedimentation rate (ESR) Rate at which red blood cells settle in whole blood (measured in millimeters) in 1 hour of falling.

ethics Area of philosophy that examines values, actions, and choices to determine right and wrong.

ethylenediaminetetraacetic acid (EDTA) Additive that prevents coagulation by binding calcium.

evacuated collection tube Stoppered glass or plastic tube used for collecting blood; contains a premeasured vacuum.

evacuated tube holder Specialized plastic adaptor that holds both a needle and a tube for blood collection; *adaptor* and *barrel* are also common names.

evaluation Examination of the evidence found when measuring the indicators.

expectorate Generate a cough from deep within the lungs and bronchi.

exposure control plan A protocol to be followed in the event an employee is exposed to bloodborne pathogens.

expressed consent Abstinance from food and liquids (except for water) for a specified period.

expressed consent Patient consent given verbally.

exsanguination Process of blood loss to a degree sufficient to cause death.

external respiration The exchange of air between the lungs and the outside environment.

externship Training in a clinical setting.

F

false-negative Test result that does not indicate a condition or substance that is actually present.

false-positive Test result that indicates a positive result that is not true.

fasting Abstinance from food and liquids (except for water) for a specified period.

fecal occult blood Small amounts of blood found in the feces/stool.

female reproductive system The organs of a female that are involved in sexual reproduction.

femoral Pertaining to the thigh.

fibrin Filamentous protein formed by the action of thrombin on fibrinogen.

fibrinogen Protein found in plasma; essential for clotting blood.

filtering facepiece respiratory (FFR) Specialized PPE to be worn when caring for patients with or without the potential for respiratory illnesses or contagious diseases.

fire and explosive hazard Situation in which the likelihood of fire or explosions exists.

first morning void Urine that is produced during the night and collected in the morning at the first void.

fistula Surgically inserted shunt (U-shaped tube) connecting an artery and a vein.

fomite Inanimate object capable of transmitting infectious organisms.

Food and Drug Administration (FDA) Federal agency that approves medical and diagnostic equipment, pharmaceuticals, reagents, diagnostic tests, and content labeling.

frontal plane Plane dividing the body into front and back portions.

G

galactosemia Increased levels of galactose in the blood caused by the inability to break down the milk sugar galactose.

gauge Unit of measure assigned to the diameter of the lumen (hole) of a needle.

gestational diabetes Elevated blood sugar during pregnancy.

Globally Harmonized System (GHS) An internationally agreed-upon system for communicating chemical hazards.

glucose testing Measurement of blood glucose levels.

glycolysis Normal body reaction in which glucose is converted to lactic acid.

granulocytes White blood cells containing granules of various colors and chemical makeup: basophils, eosinophils, and neutrophils.

H

hand hygiene A general term that includes both handwashing and the use of alcohol-based hand rubs.

hard skills Specific technical and operational proficiencies.

hazard statement Description of the nature and degree of a chemical's hazard(s).

hazardous materials (HAZMATS) Chemicals that pose a hazard when exposure occurs.

Health Insurance Portability and Accountability Act (HIPAA) Federal law that establishes a national standard for electronic healthcare transactions and protects the privacy and confidentiality of patient information; among other provisions, HIPAA states that information about a patient must not be discussed with individuals other than the patient unless the patient has given written or verbal permission.

healthcare-associated infections (HAIs) Infections acquired in healthcare settings.

heel warmer Chemically activated heating device.

hematocrit Percentage of space taken up by red blood cells in a whole blood sample; also referred to as *packed cell volume* and *microhematocrit*.

hematology Study of blood and blood-forming tissues.

hematoma Collection of blood under the skin due to leakage of blood from a punctured vein or artery.

hematopoietic Blood-forming tissues.

hemochromatosis Disorder of iron metabolism in which too much iron is stored in the body, reaching toxic levels.

hemoconcentration Rapid increase in the ratio of blood components (cells) to plasma (liquid).

hemodilution Increase in plasma water.

hemoglobin Iron-rich protein molecules found in red blood cells; transports oxygen and carbon dioxide.

hemolysis Destruction of red blood cells that allows hemoglobin to be released from the red blood cells.

hemostasis Coagulation, or clot formation, that repairs vessel damage and stops blood loss.

heparin Additive that prevents coagulation by inactivating thrombin.

heparin lock Winged needle set that remains in a patient's vein for a certain amount of time. Also known as a saline lock.

high complexity tests Classification of laboratory tests that require close attention to detail and specialized training.

high-efficiency particulate air (HEPA) A type of air filter that is intended to remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (μm).

histology Study of human body tissues and cells.

homeostatis The state of balance or condition of optimal functioning of the body.

human chorionic gonadotropin (hCG) Hormone produced by the placenta.

hypothyroidism Decreased thyroid function.

iatrogenic anemia Lowering of a patient's red blood cell count due to a medical treatment such as excessively repeated phlebotomy.

icteric Greenish yellow coloring indicating an elevated level of bilirubin.

immune system The body system responsible for protecting the body against microorganisms, toxins, and cancer.

immunohematology (blood bank) Collection and preparation of donor blood for transfusion.

immunology Study of how the body resists allergies and other agents that affect the body's immune system; also called *serology*.

implied consent Patient consent given with expected actions and behaviors such as arriving in the laboratory for a blood test.

incident forms Documents recording procedural or process errors.

indicators Observable events used as evidence.

inferior Below or toward the feet.

informed consent Permission to perform a procedure.

integumentary system Body system that provides protection, regulates temperature, prevents water loss, and synthesizes vitamin D.

interfering substance Substance that produces incorrect laboratory test results.

internal respiration The movement of gases between tissue cells and blood.

interprofessional Pertaining to people from different professions.

interstitial fluid Fluid between cells and tissues.

isoenzyme An enzyme in a group of enzymes that catalyzes the same chemical reaction but have different physical properties.

isolation precautions Practices to prevent the spread of infection based on how the infectious agent is transmitted.

jaundice Yellow coloration to skin, eyes, and mucous membranes.

lancet Small cutting instrument that controls the depth of the cutting blade.

lateral Away from the middle of the body.

law Rule of conduct or action prescribed or formally recognized as binding or enforced by a controlling authority.

legal specimens Specimens requiring special handling for criminal investigation.

leukocyte White blood cell, round cell with a nucleus whose main function is to combat infection and remove disintegrating tissues.

Levey-Jennings chart Graph showing acceptable limits for results of control substance testing.

liability Legal obligation to compensate another for loss or damages.

licensure Process that is enforced by a governmental agency to ensure adequacy of training.

ligament Fibrous tissue connecting bones to other bones.

light-sensitive Type of substances for which specimens need to be covered.

lipemia Cloudy serum or plasma following or caused by increased lipids (fats).

litigation Legal action or lawsuit.

lymphatic system Body system that removes foreign substances from the blood and lymph.

lymphocyte Leukocyte produced in the lymphoid tissue; a nongranular leukocyte that has a role in the body's immune system.

lymphoid Pertaining to the lymphatic system or resembling lymphocytes.

lymphostasis Lack of fluid drainage in the lymph system, usually caused by lymph node removal.

male reproductive system The organs of a male that are involved in sexual reproduction.

malpractice Incorrect treatment of a patient by a healthcare worker.

medial Close to the middle of the body.

median basilic vein Vein located near the median cutaneous nerve making it more painful for venipuncture for patients with M pattern antecubital veins.

median cephalic vein The second choice vein for venipuncture for patients with an M pattern that is accessible and away from major arteries and nerves.

median cubital vein Most commonly used vein for venipuncture; located in the middle of the forearm.

median vein Vein located in the center of the forearm that is most commonly used for venipuncture on patients with M pattern antecubital veins.

medical microbiology Study of one-cell organisms (microorganisms) that are usually visible only under a microscope; the main focus is on bacteria.

metabolic acidosis A condition in which the body retains too much acid, resulting in a lower blood pH.

metabolic alkalosis A condition in which the body retains too much bicarbonate, resulting in a higher blood pH.

microcollection Process of obtaining blood using a dermal (capillary) puncture procedure; also known as *microtechnique*.

microhematocrit Manual procedure for determining hematocrit that requires only a small amount of blood.

microsurgery Surgery involving reconstruction of small tissue structures.

midsagittal plane Plane dividing the body into equal left and right halves.

moderate complexity tests Classification of laboratory tests that fall between low (waived) and high complexity tests with respect to the complexity of the test and the training required.

molecular diagnostics Detection and classification of disease states using molecular and DNA-based testing.

molecules Atoms that have bonded together.

monocyte Large leukocyte formed in bone marrow, with abundant cytoplasm and a kidney-shaped nucleus; ingests bacteria, dying cells, and debris in tissues.

mononuclear Having a single-lobed nucleus.

multicultural Many different cultures.

multiskilled Trained in more than one job function.

muscular system Body system that produces movement, maintains posture, and produces body heat.

myeloid Developed from bone marrow.

N

nasal swab Used to collect a specimen from the cavities just inside the nose; also called the nares.

nasopharyngeal swab Used to collect a specimen from the area behind the nasal sinuses.

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) Organization that provides accreditation to phlebotomy training programs and offers certification for structured educational programs.

natural killer (NK) cells Type of lymphocytes that can attack and destroy tumor cells or cells that have been infected by viruses.

needlestick injury Accidental puncture of skin with a needle.

Needlestick Safety and Prevention Act Legislation that mandates the use of safety devices that reduce needlestick injuries in the clinical setting.

negligence Intentional or unintentional error or wrongdoing; failure to perform reasonably expected duties to patients.

nervous system Body system that is responsible for conscious and unconscious actions.

networking Building social and professional alliances.

neutrophil Leukocyte that engulfs and digests pathogens found in tissues; its granules stain lavender.

normal flora Microorganisms that typically live on and in the body, normally causing no harm to the host.

O

Occupational Safety and Health Administration (OSHA) Federal body responsible for preventing and minimizing employee injuries and exposure to harmful agents.

organelles Parts of a cell, such as nuclei, lysosomes, and mitochondria.

organism Living creature composed of organ systems.

organs Combination of two or more tissue types to form a system.

osteomyelitis Infection or inflammation of the bone or bone marrow.

other potentially infectious materials (OPIMs) Body fluids, soiled laundry, or any item that may be contaminated with pathogens.

oxygenated Containing a higher concentration of oxygen than carbon dioxide.

P

packed cell volume (PCV) Hematocrit.

palmar Pertaining to the palm side of the hand.

palpate Examine by touching with the fingers, using pressure, then releasing.

parameters Limitations.

patient advocate Someone who helps guide patients through the healthcare system.

patient outcomes The condition of a patient after treatment or a disease, including the degree of wellness and the need for continuing care, length of stay (if hospitalized), medication, support, counseling, or education.

peak level Specimen collected when a serum drug level is at its highest level, usually 15 to 30 minutes after administration.

personal protective equipment (PPE) Protective coverings, such as gloves, goggles, gowns, and masks, that are worn to minimize exposure to blood and body fluids; required by OSHA to be worn when handling body fluids.

petechiae Small, nonraised, red spots appearing on the skin due to minor hemorrhage in underlying tissue.

phagocytosis Process by which bacteria and antigens are surrounded and engulfed by leukocytes.

phenylketonuria (PKU) Increased level of phenylketone in the blood.

phlebotomist Individual trained and skilled in obtaining blood samples for clinical testing.

phlebotomy Invasive procedure in which a sharp object is introduced into a vein to obtain blood.

physical hazards Nonbiological objects that may cause injury or illness.

physician office laboratory (POL) Small laboratory that is operated in a clinical practice office.

physiology Study of the function of the body.

pictogram A symbol that conveys specific information about the hazards of a chemical.

plantar Pertaining to the sole, or bottom, of the foot.

plasma Clear, pale yellow fluid component of blood that contains fibrinogen; obtained from a tube that has an anti-coagulant and has been centrifuged.

pneumatic tube system Transporting of tubes through pipes using vacuum forces.

point-of-care testing (POCT) Tests performed at the patient's bedside or work area, using a portable instrument.

polycythemia vera Condition in which there is an overproduction of red blood cells.

polymorphonuclear Having multiple-lobed nuclei.

posterior Toward the back of the body.

postprandial After eating a meal.

powered air-purifying respiratory (PAPR) Specialized PPE to be worn when caring for patients with or without the potential for respiratory illnesses or contagious diseases.

precautionary statement Document that describes measures to minimize or prevent adverse effects resulting from exposure to a hazardous chemical.

precision Ability to give nearly the same result when performed repeatedly.

preexamination error Events before, during, or after the collection of blood and other specimens and before analysis.

prefix Placed at the beginning of a word to alter its meaning.

presumptive negative When a rapid diagnostic test (RDT) is performed and no antigens are detected but the patient may still be infected with the organism.

preventive action Activity that helps ensure that an error does not occur again.

process Procedure or duty that is to be done to a patient.

professional (1) A member of a vocation requiring specialized educational training; (2) a manner of behavior.

professional development Attaining skills and knowledge for both personal growth and career advancement.

professionalism Group of characteristics or qualities that display a positive image or code of ethics; behavior that exhibits the traits or features that correspond to the models and standards of a profession.

proficiency testing (PT) Means of evaluating the performance of a laboratory and its personnel in comparison with that of other similar laboratories.

prone Lying face down.

provider-performed microscopy procedures (PPMPs) Subcategory of moderate complexity testing that allows healthcare providers to perform certain tests only for their own patients.

proximal Closer to the point of attachment or toward the trunk of the body.

pulmonary arteries Arteries that transport deoxygenated blood to the lungs.

pus Substance containing old leukocytes, pathogens, and other debris; created at the site of infection once the white blood cells undergo phagocytosis.

Q

quality assessment and process improvement (QAPI)

The review of documentation to discover and eliminate weaknesses in a process and improve the quality of patient outcomes.

quality assurance (QA) System of planned activities that assess operational processes for the delivery of services or the quality of products provided to consumers, customers, or patients.

quality control (QC) Activities that ensure that specific steps in a process meet acceptable standards.

quality cost management (QCM) System to measure and manage the cost of quality.

quality management system (QMS) Establishment of quality objectives and the methods used to monitor the achievement of those objectives.

R

radioactive hazard A hazard that exists where ionizing radiation is present.

random errors Errors that occur with no predictable pattern and may have several different causes.

rapid diagnostic test Laboratory tests that provide fast results performed on various specimen type to test for pathogenic organisms or an immune system response.

rapid diagnostic test (RDT) Laboratory tests that provide fast results performed on various specimen type to test for pathogenic organisms or an immune system response.

rapport Behavior, courtesy, and respect given a patient.

reagents Chemicals used in performing laboratory tests.

real-time tracking Continuous monitoring of a specimen's status from the time of the test request to reporting of the results.

reference laboratory Offsite lab to which specimens are referred for testing; usually used for tests not routinely performed in physician offices.

registration Placement on a membership list for a professional association (usually requiring certification).

reliable Believable and dependable.

requisition Documentation of a blood test order, usually generated by or at the request of a physician.

respiratory acidosis A condition in which the lungs do not remove enough CO₂ from the body, resulting in a lower blood pH and making the blood too acidic.

respiratory alkalosis A condition in which the lungs remove too much CO₂ from the body, resulting in a higher blood pH and making the blood too alkaline.

respiratory system Body system that provides oxygen to body cells and removes carbon dioxide.

respondeat superior The employer is responsible for the acts of his or her employees.

résumé Document summarizing employment and educational history.

Rh antigen Protein originally found on the red blood cells of Rhesus monkeys.

ribonucleic acid (RNA) Protein that assists in translating information from DNA.

risk management Policies and procedures to protect patients, employees, and the employer from loss or injury; generated and conducted by a department in healthcare facilities.

rouleaux formation The sticking of red blood cells to one another in rows, usually caused by increased plasma proteins; these are not the same as clots.

S

- safety data sheets (SDS)** Documentation of specific chemical ingredients found in hazardous substances and emergency instructions to follow if abnormal contact occurs.
- sagittal plane** Plane dividing the body into left and right portions.
- saline lock** Winged needle set that remains in a patient's vein for a certain amount of time. Also known as a heparin lock.
- sclerosis** Abnormal hardening of tissue.
- scope of practice** Procedures and processes permitted for a specific profession.
- sedentary** Not engaged in any physical activity.
- semen** Fluid produced by the male reproductive system, containing sperm and some substances necessary for fertilization.
- sepsis** A life-threatening response of the body to infection.
- septicemia** Presence of pathogenic microorganisms in the blood, causing symptoms such as fever, chills, and changes in mental state.
- septum** Muscular wall between the left and right sides of the heart.
- serology** Identification of antibodies in the blood's serum.
- serum** Clear, pale yellow fluid that remains after blood clots and is separated; does not contain fibrinogen; plasma minus the clotting factors.
- sharps container** Clearly marked container that is rigid, leak-proof, and puncture resistant, for the disposal of needles, lancets, and other contaminated sharps.
- shelter-in-place** An interior room or rooms within a building with few or no windows that could be used as a refuge.
- shift** Sudden jump in results that continues at a higher or lower level.
- sickle cell disease** Hemoglobin that causes red blood cells to have an abnormal structure due to a genetic mutation.
- signal word** A word or term (usually either "danger" or "warning") used on a label to indicate the relative level of severity of hazard.
- skeletal system** Body system that provides the body with protection and support.
- soft skills** Personal attributes or behaviors that enhance an individual's interactions on the job.
- sputum** Mucus that collects in the air passages of the respiratory system.
- standard operating procedure (SOP)** Purpose, specimen requirements, step-by-step procedure, limitations, normal and critical values, and interpretation for each procedure performed in the laboratory.
- standard precautions** Infection control guidelines issued by the CDC to decrease exposure to potentially infectious substances in acute care settings.
- standards** Rules of practice.
- STAT (ST)** Immediate need.
- stereotypes** Commonly held beliefs and concepts about a specific group of people.
- sterile** Free of microorganisms.

stool specimen Fecal matter that is waste discharged from the digestive system.

strep screening Test used to determine if the bacteria Group A *Streptococcus* is present in the throat.

stress The body's nonspecific response to change or demands.

suffix Placed at the end of a word to alter its meaning.

superficial Close to the surface of the body.

superior Above or toward the head.

supine Face upward, lying on the back.

suprapubic puncture (aspirate) Urine collection procedure requiring the insertion of a needle through the area just above the pubic bone and directly into the bladder to remove urine by aspiration.

syncope Fainting.

systematic errors Errors that occur due to differences in performance among staff.

T

T lymphocyte (T-cell) A type of lymphocyte that originates from the lymphoid tissue and assists the immune system through interactions with other leukocytes.

tendon Fibrous tissue connecting bones to muscles.

test panel A group of laboratory tests associated with a single organ or body system.

test profile A group of laboratory tests that provide an assessment of two or more body systems.

The Joint Commission (TJC; formerly Joint Commission on the Accreditation of Healthcare Organizations) Agency that accredits healthcare facilities to ensure high standards of patient care.

therapeutic drug monitoring (TDM) Physician management of an effective drug dose.

therapeutic phlebotomy Removal of large amounts of blood.

thixotropic separator gel Semisolid that forms a barrier between cells and plasma or serum upon centrifugation of blood specimens.

thoracic cavity Body cavity that contains the lungs, heart, esophagus, and trachea.

throat swabs Specimens taken from the back of the throat using a fabric-tipped applicator stick.

thrombin Enzyme formed in response to an injury that converts fibrinogen to a fibrin clot.

thrombocyte Smallest of the formed elements in the bloodstream; also called *platelet*.

tissue A group of biological cells that perform a similar function.

total quality management (TQM) Identification of an organization's internal and external customers in an effort to design operations that produce the highest customer satisfaction.

tourniquet Device that impedes or stops the flow of blood.

toxicology Detection and study of agents that are harmful to the body.

training Providing staff with the knowledge to perform their jobs correctly.

transmission-based precautions Various levels of isolation and PPE uses that are based on how the infectious agent is transmitted.

transverse plane Plane dividing the body into upper and lower portions.

trend Results showing an upward or downward progression.

trough level Specimen collected when a serum drug level is at its lowest level, usually immediately before the next scheduled dose is administered.

tunica adventitia Outermost covering of arteries and veins.

tunica intima Innermost layer of arteries and veins.

tunica media Middle layer of arteries and veins.

U

urinalysis The testing of urine for physical, chemical, and microscopic characteristics.

urinary system Body system that removes liquid waste from the blood and maintains the proper balance of water and salts in the body.

urine chemical screening The testing of urine for various chemicals, most not normally present in the urine.

urine pregnancy tests The testing of urine for the presence of human chorionic gonadotropin (hCG), indicating pregnancy.

V

validation Ensuring accuracy and precision of laboratory test results.

valves Flaps of tissue that open in one direction to let blood pass through.

variances Deviations from the procedure.

vector-borne transmission Spread of disease through insect or animal bites.

vehicle-borne transmission Spread of disease through contact with contaminated items, such as food, linen, or equipment.

vein Blood vessel that transports blood from body tissues back to the heart.

venae cavae (singular: vena cava) Largest veins in the body.

venipuncture Procedure in which a sharp object is introduced into a vein for the purpose of withdrawing blood or instilling medications.

venous reflux Backward flow of blood into the patient's veins during venipuncture.

ventral Body cavity that contains the thoracic cavity and abdominopelvic cavity.

ventricle One of two bottom chambers of the heart, known as the pumping chambers.

venule Minute vein.

W

waived tests FDA-approved laboratory tests that are minimally complicated and pose little risk of harm to the patient.

winged infusion set Stainless steel collection needle connected to 5 to 12 inches of plastic tubing; also called a *butterfly needle set*.

word root Part of a medical term that contains the base meaning of the term.

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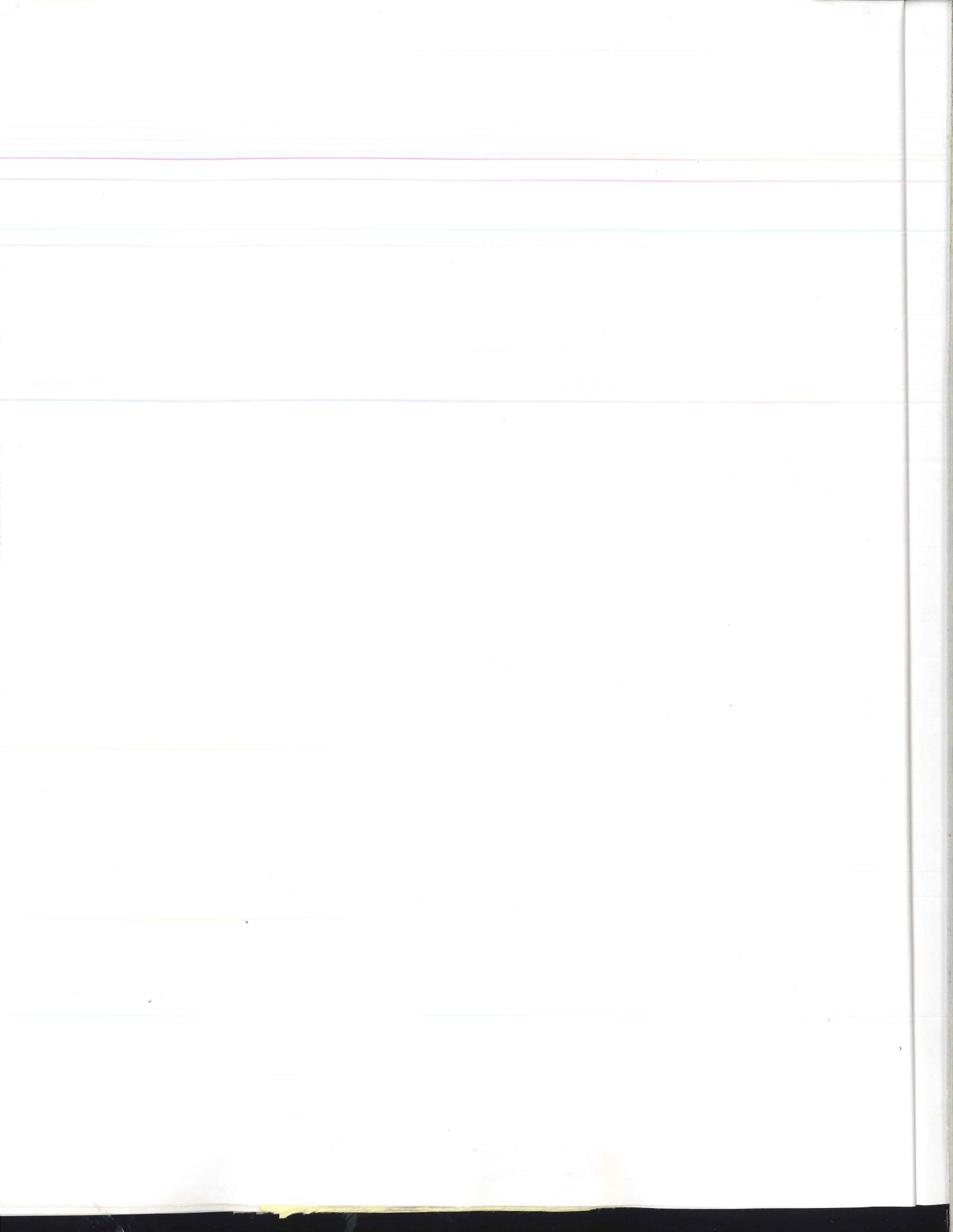
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