10-code radio communications system using codes that begin with the word *ten*.

2,3-diphosphoglycerate (2,3-DPG) chemical in the red blood cells that affects hemoglobins’ affinity for oxygen.

abandonment termination of the paramedic–patient relationship without assurance that an equal or greater level of care will continue.

abduction movement of a body part away from the midline.

ABO blood group two antigens known as A and B. A person may have either (type A or type B), both (type AB), or neither (type O). An immune response will be activated whenever a person receives blood containing A or B antigen if this antigen is not already present in his own blood.

acetylcholinesterase (AChE) enzyme that stops the action of acetylocholine, a neurotransmitter.

acidosis a high concentration of hydrogen ions; a pH below 7.35.

acquired immunity protection from infection or disease that is (a) developed by the body after exposure to an antigen, or (b) transferred to the person from an outside source.

action potential the stimulation of myocardial cells, as evidenced by a change in the membrane electrical charge, that subsequently spreads across the myocardium.

active listening the process of responding to your patient’s statements with words or gestures that demonstrate your understanding.

active rescue zone area where special rescue teams operate; also known as the “hot zone” or “inner circle.”

active transport movement of a substance through a cell membrane against the osmotic gradient; that is, from an area of lesser concentration to an area of greater concentration, opposite to the normal direction of diffusion; requires the use of energy to move a substance.

actual damages refers to compensatable physical, psychological, or financial harm.

acuity the severity or acuteness of your patient’s condition.

acute effects signs and symptoms rapidly displayed on exposure to a toxic substance.

addendum addition or supplement to the original report.

adduction movement of a body part toward the midline.

adenosine triphosphate (ATP) a high-energy compound present in all cells, especially muscle cells; when split by enzyme action, it yields energy. Energy is stored in ATP.

adjunct medication agent that enhances the effects of other drugs.

administration tubing flexible, clear plastic tubing that connects the solution bag to the IV cannula.
administrative law a law that is enacted by governmental agencies at either the federal or the provincial and territorial level. Also called regulatory law.

adrenergic pertaining to the neurotransmitter norepinephrine.

advance directive a document created to ensure that certain treatment choices are honoured when a patient is unconscious or otherwise unable to express her choice of treatment.

advanced life support (ALS) refers to such advanced lifesaving procedures as intravenous therapy, drug therapy, intubation, and defibrillation, cardioversion/pacing provided by advanced care paramedics (ACP) or critical care paramedics (CCP).

aerobic metabolism the second stage of metabolism, requiring the presence of oxygen, in which the breakdown of glucose (in a process called the Krebs or citric acid cycle) yields a high amount of energy. Aerobic means “with oxygen.”

aeromedical evacuations transport by helicopter or fixedwing aircraft.

affinity force of attraction between a drug and a receptor.

afterload the resistance against which the heart must pump.

against medical advice (AMA) your patient refuses care even though you feel he needs it.

agonist drug that binds to a receptor and causes it to initiate the expected response.

agonist-antagonist (partial agonist) drug that binds to a receptor and stimulates some of its effects but blocks others.

AIDS acquired immunodeficiency syndrome, a group of signs, symptoms, and disorders that often develop as a consequence of HIV infection.

air embolism air in the vein.

air-purifying respirator (APR) system of filtering a normal environment for a specific chemical substance using filter cartridges.

albumin a protein commonly present in plant and animal tissues. In the blood, albumin works to maintain blood volume and blood pressure and provides colloid osmotic pressure, which prevents plasma loss from the capillaries.

algorithm schematic flow chart that outlines appropriate care for specific signs and symptoms.

alkalosis a low concentration of hydrogen ions; a pH above 7.45.

allergy exaggerated immune response to an environmental antigen.

allied health professions ancillary health-care professions, apart from physicians and nurses.

alveoli microscopic air sacs where most oxygen and carbon dioxide gas exchanges take place.
amphiarthrosis joint that permits a limited amount of independent motion.

ampule breakable glass vessel containing liquid medication.

anabolism the constructive phase of metabolism in which cells convert nonliving substances into living cytoplasm.

anaerobic metabolism the first stage of metabolism, which does not require oxygen, in which the breakdown of glucose (in a process called glycolysis) produces pyruvic acid and yields very little energy. Anaerobic means “without oxygen.”

analgesia the absence of the sensation of pain.

analgesic medication that relieves the sensation of pain.

anaphylaxis a life-threatening allergic reaction; also called anaphylactic shock.

anatomy the structure of an organism; body structure.

anchor time set of hours when a night-shift worker can reliably expect to rest without interruption.

anesthesia the absence of all sensation.

anesthetic medication that induces a loss of sensation to touch or pain.

anion an ion with a negative charge—so called because it will be attracted to an anode, or positive pole.

antacid alkalotic compound used to increase the gastric environment’s pH.

antagonist drug that binds to a receptor but does not cause it to initiate the expected response.

anterior medial fissure deep crease along the ventral surface of the spinal cord that divides the cord into right and left halves.

antibiotics substances that destroy or inhibit microorganisms, tiny living bodies invisible to the naked eye. (Antibiotic means “destructive to life.”)

antibody a substance produced by B lymphocytes in response to the presence of a foreign antigen that will combine with and control or destroy the antigen, thus preventing infection.

anticoagulant drug that interrupts the clotting cascade.

antidiuresis formation and passage of concentrated urine, preserving blood volume.

antidysrhythmic drug used to treat and prevent abnormal cardiac rhythms.

antiemetic medication used to prevent vomiting.

antigen a marker on the surface of a cell that identifies it as “self” or “not self.”

antihyperlipidemic drug used to treat high blood cholesterol.

antihypertensive drug used to treat hypertension.
antineoplastic agent drug used to treat cancer.
antiplatelet drug that decreases the formation of platelet plugs.
antiseptic cleansing agent that is not toxic to living tissue.
antitussive medication that suppresses the stimulus to cough in the central nervous system.
apnea absence of breathing.
apoptosis response in which an injured cell releases enzymes that engulf and destroy itself; one way the body rids itself of damaged and dead cells.
appendicular skeleton bones of the extremities, shoulder girdle, and pelvis (excepting the sacrum).
aqueous humor clear fluid filling the anterior chamber of the eye.
arachnoid membrane middle layer of the meninges.
articular surface surface of a bone that moves against another bone.
ascending loop of Henle the part of the nephron tubule beyond the descending loop of Henle.
ascending tracts bundles of axons along the spinal cord that transmit signals from the body to the brain.
ascites bulges in the flanks and across the abdomen, indicating edema caused by congestive heart failure.
asepsis a condition free of pathogens.
aspiration inhaling foreign material, such as vomitus, into the lungs.
asault an act that unlawfully places a person in apprehension of immediate bodily harm without consent.
assay test that determines the amount and purity of a given chemical in a preparation in the laboratory.
atelectasis alveolar collapse.
atrophy a decrease in cell size resulting from a decreased workload.
auscultation listening with a stethoscope for sounds produced by the body.
autoimmune disease condition in which the body makes antibodies against its own tissues.
autoimmunity an immune response to self-antigens, which the body normally tolerates.
automaticity pacemaker cells’ capability of selfdepolarization.
avtomonic dysfunction an abnormality of the involuntary aspect of the nervous system.
**autonomic ganglia** groups of autonomic nerve cells located outside the central nervous system.

**autonomic nervous system** part of the nervous system that controls involuntary actions.

**autonomy** a competent adult patient’s right to determine what happens to his own body.

**autoregulation** process that controls blood flow to tissue by causing alterations in the tissue.

**axial skeleton** bones of the head, thorax, and spine.

**B lymphocytes** white blood cells that, in response to the presence of an antigen, produce antibodies that attack the antigen, develop a memory for the antigen, and confer long-term immunity to the antigen.

**Babinski response** big toe dorsiflexes and the other toes fan out when sole is stimulated.

**bacteria** (singular *bacterium*) single-cell organisms with a cell membrane and cytoplasm but no organized nucleus. They bind to the cells of a host organism to obtain food and support.

**basic life support (BLS)** refers to basic life-saving procedures such as artificial ventilation and cardiopulmonary resuscitation (CPR, automatic defibrillation) generally provided by EMS personnel at the primary care paramedic (PCP) level.

**battery** the unlawful touching of another individual without consent.

**Battle’s sign** black and blue discoloration over the mastoid process.

**beneficence** the principle of doing good for the patient.

**bioassay** test to ascertain a drug’s availability in a biological model.

**bioavailability** amount of a drug that is still active after it reaches its target tissue.

**bioequivalence** relative therapeutic effectiveness of chemically equivalent drugs.

**bioethics** ethics as applied to the human body.

**biological half-life** time the body takes to clear one-half of a drug.

**biotransformation** chemical alteration of a substance within the body; in the case of hazardous materials, the body tries to create less toxic materials.

**blood pressure** force of blood against arterial walls as the heart contracts and relaxes; the tension exerted by blood against the arterial walls.

**blood spatter evidence** the pattern that blood forms when it is spattered or dropped at the scene of a crime.

**blood tube** glass container with colour-coded, self-sealing rubber top.

**blood tubing** administration tubing that contains a filter to prevent clots or other debris from entering the patient.
blood-brain barrier tight junctions of the capillary endothelial cells in the central nervous system vasculature through which only non-protein-bound, highly lipid-soluble drugs can pass.

body armour vest made of tightly woven, strong fibres that offer protection against handgun bullets, most knives, and blunt trauma; also known as a “bullet-proof vest.”

body substance isolation (BSI) a strict form of infection control that is based on the assumption that all blood and other body fluids are infectious.

Bohr effect phenomenon in which a decrease in pCO2/acidity causes an increase in the quantity of oxygen that binds with the hemoglobin and, conversely, an increase in pCO2/acidity causes the hemoglobin to give up a greater quantity of oxygen.

bolus concentrated mass of medication.

borborygmi loud, prolonged, gurgling bowel sounds indicating hyperperistalsis.

Bowman’s capsule the hollow, cup-shaped first part of the nephron tubule.

bradycardia a pulse rate slower than 60.

bradypnea slow breathing.

brainstem the part of the brain connecting the cerebral hemispheres with the spinal cord. It comprises the mesencephalon, the pons, and the medulla oblongata.

branches functional levels within the IMS based upon primary roles and geographic locations.

breach of duty an action or inaction that violates the standard of care expected from a paramedic.

bronchi tubes from the trachea into the lungs.

bronchophony abnormal clarity of patient’s transmitted voice sounds.

Broselow tape a measuring tape for infants that provides important information regarding airway equipment and medication doses based on your patient’s length.

bruit sound of turbulent blood flow around a partial obstruction.

bubble sheet scanable call sheet on which you fill in boxes or “bubbles” to record assessment and care information.

buccal between the cheek and gums.

buffer a substance that tends to preserve or restore a normal acid-base balance by increasing or decreasing the concentration of hydrogen ions.

burette chamber calibrated chamber of Berutrol IV administration tubing that enables precise measurement and delivery of fluids and medicated solutions.

burnout occurs when coping mechanisms no longer buffer stressors, which can compromise personal health and well-being.

bursae sacs containing synovial fluid that cushion adjacent structures; singular bursa.
CAMEO® Computer-Aided Management of Emergency Operations; website developed by the EPA and NOAA as a source of information, skills, and links related to hazardous substances.

cancellous having a lattice-work structure, as in the spongy tissue of a bone.
cannula hollow needle used to puncture a vein.
cardiac contractile force force of the strength of a contraction of the heart.
cardiac cycle the period of time from the end of one cardiac contraction to the end of the next.
cardiac depolarization a reversal of charges at a cell membrane so that the inside of the cell becomes positive in relation to the outside; the opposite of the cell’s resting state in which the inside of the cell is negative in relation to the outside.
cardiac monitor machine that displays and records the electrical activity of the heart.
cardiac output the amount of blood pumped by the heart in one minute.
cardiogenic shock shock caused by insufficient cardiac output; the inability of the heart to pump enough blood to perfuse all parts of the body.
carrier-mediated diffusion process in which carrier proteins transport large molecules across the cell membrane; also called facilitated diffusion.
cartilage connective tissue providing the articular surfaces of the skeletal system.
catabolism the destructive phase of metabolism in which cells break down complex substances into simpler substances with release of energy.
catheter inserted through the needle (intracatheter) Teflon catheter inserted through a large metal stylet.
cation an ion with a positive charge—so called because it will be attracted to a cathode, or negative pole.
cell membrane also plasma membrane; the outer covering of a cell.
cell the basic structural unit of all plants and animals. Cells are specialized to carry out all of the body’s basic functions.
cell-mediated immunity the short-term immunity to an antigen provided by T lymphocytes, which directly attack the antigen but do not produce antibodies or memory for the antigen.
cellular swelling swelling of a cell caused by injury to or change in permeability of the cell membrane with resulting inability to maintain stable intra- and extracellular fluid and electrolyte levels.
cellular telephone system telephone system divided into regions, or cells, that are served by radio base stations.
central nervous system the brain and the spinal cord.
central venous access surgical puncture of the internal jugular, subclavian, or femoral vein.

cerebellum portion of the brain located dorsally to the pons and medulla oblongata. It plays an important role in the fine control of voluntary muscular movement.

cerebral perfusion pressure (CPP) the pressure moving blood through the brain.

cerebrospinal fluid fluid surrounding and bathing the brain and spinal cord (the elements of the central nervous system).

cerebrum largest part of the brain. It consists of two hemispheres separated by a deep longitudinal fissure. It is the seat of consciousness and the centre of the higher mental functions, such as memory, learning, reasoning, judgment, intelligence, and emotions.

certification the process by which an agency or association grants recognition and the ability to practise to an individual who has met its qualifications.

C-FLOP mnemonic for the main functional areas with the IMS—command, finance and administration, logistics, operations, and planning.

chemotactic factors chemicals that attract more white blood cells to an area of inflammation, a process called chemotaxis.

C-FLOP the movement of white blood cells in response to chemical signals.

CHEMTEL, Inc. Chemical Telephone, Incorporated; maintains a 24-hour, toll-free hotline at 800-255-3024; for collect calls and calls from other points of origin, dial 813-979-0626.

CHEMTREC Chemical Transportation Emergency Center; maintains a 24-hour, toll-free hotline at 800-424-9300; for collect calls and calls from other points of origin, dial 703-527-3887.

chief complaint the reason the ambulance was called; the pain, discomfort, or dysfunction that caused your patient to request help.

cholinergic pertaining to the neurotransmitter acetylcholine.

chronotropy pertaining to heart rate.

chyme semifluid mixture of ingested food and digestive secretions found in the stomach and small intestine.

circadian rhythms physiological phenomena that occur at approximately 24-hour intervals.

circulation assessment evaluating the pulse and skin and controlling hemorrhage.

circulatory overload an excess in intravascular fluid volume.

circumduction movement at a synovial joint where the distal end of a bone describes a circle but the shaft does not rotate; movement through an arc of a circle.
civil law the division of the legal system that deals with noncriminal issues and conflicts between two or more parties.

cleaning washing an object with cleaners such as soap and water.

clinical judgment the use of knowledge and experience to diagnose patients and plan their treatment.

clitoris highly innervated and vascular erectile tissue anterior to the labia minora.

closed incident an incident that is not likely to generate any further patients; also known as a contained incident or a stable incident.

closed questions questions that ask for specific information and require only very short or yes-or-no answers. Also called direct questions.

closed stance a posture or body position that is tense and suggests negativity, discomfort, fear, disgust, or anger.

cold zone location at a hazmat incident outside the warm zone; area where incident operations take place; also called the green zone or the safe zone.

collecting duct the larger structure beyond the distal nephron tubule into which urine drips.

colloids substances, such as proteins or starches, consisting of large molecules or molecule aggregates that disperse evenly within a liquid without forming a true solution; intravenous solutions containing large proteins that cannot pass through capillary membranes.

command post (CP) place where command officers from various agencies can meet with each other and select a management staff.

command the individual or group responsible for coordinating all activities and who makes final decisions on the emergency scene; often referred to as the incident commander (IC) or officer in charge (OIC).

common law law derived from society’s acceptance over time of customs and norms. Also called case law or judge-made law.

communication the exchange of common symbols— written, spoken, or other kinds, such as signing and body language.

compensated shock early stage of shock during which the body’s compensatory mechanisms are able to maintain normal perfusion.

competent able to make an informed decision about medical care.

competitive antagonism one drug binds to a receptor and causes the expected effect while also blocking another drug from triggering the same receptor.

concealment hiding the body behind objects that shield a person from view but that offer little or no protection against bullets or other ballistics.

concentration weight per volume.
**conductivity** ability of cells to propagate the electrical impulse from one cell to another.

**confidentiality** the principle of law that prohibits the release of medical or other personal information about a patient without the patient’s consent.

**conjunctiva** mucous membrane that lines the eyelids.

**connective tissue** the most abundant body tissue; it provides support, connection, and insulation. Examples: bone, cartilage, fat, blood.

**consent** the patient’s granting of permission for treatment.

**constitutional law** law based on the Canadian Constitution.

**continuous quality improvement (CQI)** a program designed to refine and improve an EMS system, emphasizing customer satisfaction.

**CONTOMS** Counter-Narcotics Tactical Operations; program that manages the training and certification of EMT-Ts and SWAT-Medics.

**contractility** ability of muscle cells to contract, or shorten.

**convergent** focusing on only the most important aspect of a critical situation.

**cornea** thin, delicate layer covering the pupil and the iris.

**cortex** the outer tissue of an organ, such as the kidney.

**cortisol** a steroid hormone released by the adrenal cortex that regulates the metabolism of fats, carbohydrates, sodium, potassium, and proteins and also has an antiinflammatory effect.

**cover** hiding the body behind solid and impenetrable objects that protect a person from bullets.

**crackles** light crackling, popping, nonmusical sounds heard usually during inspiration.

**cranial nerves** 12 pairs of nerves that extend from the lower surface of the brain.

**cranium** vault-like portion of the skull encasing the brain.

**creatinine** a waste product caused by metabolism within muscle cells.

**crepitation (or crepitus)** crunching sounds of unlubricated parts in joints rubbing against each other.

**cricothyroid membrane** membrane between the cricoid and thyroid cartilages of the larynx.

**criminal law** division of the legal system that deals with wrongs committed against society or its members.

**critical incident stress debriefing (CISD)** a process used to help rescuers work through their responses to a critical incident within 24 to 72 hours after the event.
critical incident stress management (CISM) a system of related interventions usually performed by regional, nonpartisan, multidisciplinary teams composed of EMS peers and specifically trained mental health workers.

Critical Incident Stress Management (CISM) team monitors the emotional status of all on-scene personnel and provides the necessary support.

critical incident an event that has a powerful emotional impact on a rescuer that can cause an acute stress reaction.

critical thinking thought process used to analyze and evaluate.

crystalloids substances capable of crystallization. In solution, unlike colloids, they can diffuse through a membrane, such as a capillary wall; intravenous solutions that contain electrolytes but lack the larger proteins associated with colloids.

Cullen’s sign discoloration around the umbilicus (occasionally the flanks) suggestive of intra-abdominal hemorrhage.

cultural imposition the imposition of your beliefs, values, and patterns of behaviour on people of another culture.

cytochrome oxidase enzyme complex, found in cellular mitochondria, that enables oxygen to create the adenosine triphosphate (ATP) required for all muscle energy.

cytoplasm the thick fluid, or protoplasm, that fills a cell.

decerebrate arms and legs extended.

deconfuse to interpret a message.

decompensated shock advanced stages of shock when the body’s compensatory mechanisms are no longer able to maintain normal perfusion; also called progressive shock.

decorticate arms flexed, legs extended.

defamation an intentional false communication that injures another person’s reputation or good name.

defusing a short, informal type of debriefing held within hours of a critical incident.

degranulation the emptying of granules from the interior of a mast cell into the extracellular environment.

dehydration excessive loss of body fluid.

delayed effects signs, symptoms, and conditions developed hours, days, weeks, months, or even years after exposure to a toxic substance.

delayed hypersensitivity reaction a hypersensitivity reaction that takes place after the elapse of some time following reexposure to an antigen. Delayed hypersensitivity reactions are usually less severe than immediate reactions.

delirium an acute alteration in mental functioning that is often reversible.
dementia a deterioration of mental status that is usually associated with structural neurological disease.

demobilization establishment and staffing of a transition point with the object of providing crews time to regroup between a large-scale critical stress situation and going off duty or back to regular duty.

demobilized released resources—personnel, vehicles, and equipment—for use outside the incident when they are no longer needed at the scene.

demographic pertaining to population makeup or changes.

demylenation destruction or removal of the myelin sheath of nerve tissue; found in Guillain–Barré syndrome.

deployment strategy used by an EMS agency to manoeuvre its ambulances and crews in an effort to reduce response times.

depression a mood disorder characterized by hopelessness and malaise.

dermatome topographical region of the body surface innervated by one nerve root.

dermis true skin, also called the corium; it is the layer of tissue producing the epidermis and housing the structures, blood vessels, and nerves normally associated with the skin.

descending loop of Henle the part of the nephron tubule beyond the proximal tubule.

descending tracts bundles of axons along the spinal cord that transmit signals from the brain to the body.

desired dose specific quantity of medication needed.

detailed secondary assessment careful, thorough process of eliciting the history and conducting a physical exam.

devascularization loss of blood vessels from a body part.

diaphysis hollow shaft found in long bones.

diarthrosis a synovial joint.

diastole the period of time when the myocardium is relaxed and cardiac filling and coronary perfusion occur.

diastolic blood pressure force of blood against arteries when ventricles relax.

differential field diagnosis the list of possible causes for your patient’s symptoms.

diffusion the movement of molecules through a membrane from an area of greater concentration to an area of lesser concentration.

digestive tract internal passageway that begins at the mouth and ends at the anus; also called the alimentary canal.

digital communications data or sounds are translated into a digital code for transmission.
dilation enlargement. In reference to the heart, an abnormal enlargement resulting from pathology.

disaster management management of incidents that generate large numbers of patients, often overwhelming resources and damaging parts of the infrastructure.

disentanglement process of freeing a patient from wreckage to allow for proper care, removal, and transfer.

disinfectant cleansing agent that is toxic to living tissue.

disinfecting cleaning with an agent that can kill some microorganisms on the surface of an object.

dissociate separate; break down. For example, sodium bicarbonate, when placed in water, dissociates into a sodium cation and a bicarbonate anion.

distal tubule the part of the tubule beyond the ascending loop of Henle.

diuresis formation and passage of dilute urine, decreasing blood volume.

diuretic a medication that stimulates the kidneys to excrete excess water; an agent that increases urine secretion and elimination of body water.

divergent taking into account all aspects of a complex situation.

do not resuscitate (DNR) order a legal document, usually signed by the patient and her physician, that indicates to medical personnel which, if any, life-sustaining measures should be taken when the patient’s heart and respiratory functions have ceased.

dosage on hand the amount of drug available in a solution.

dose packaging medication packages that contain a single dose for a single patient.

down-regulation binding of a drug or hormone to a target cell receptor that causes the number of receptors to decrease.

drip chamber clear plastic chamber that allows visualization of the intravenous drip rate.

drip rate pace at which the fluid moves from the intravenous bag into the patient.

dromotropy pertaining to the speed of impulse transmission.

drop former device that regulates the size of drops.

drug chemical used to diagnose, treat, or prevent disease.

drug-response relationship correlation of different amounts of a drug to clinical response.

due regard legal terminology found in the motor vehicle laws of most provinces and territories that sets a higher standard for the operators of emergency vehicles.

duplex communication system that allows simultaneous two-way communications by using two frequencies for each channel.
**dura mater** tough layer of the meninges firmly attached to the interior of the skull and the spinal column.

**duration of action** length of time the amount of drug remains above its minimum effective concentration.

**duty to act** a formal contractual or informal legal obligation to provide care.

**dynamic steady state** homeostasis; the tendency of the body to maintain a net constant composition, although the components of the body’s internal environment are always changing.

**dysmenorrhea** menstrual difficulties.

**dysplasia** a change in cell size, shape, or appearance caused by an external stressor.

**dyspnea** the sensation of having difficulty in breathing.

**echo procedure** immediately repeating each transmission received during radio communications.

**eddies** water that flows around especially large objects and, for a time, flows upstream around the downside of an obstruction; provides an opportunity to escape dangerous currents.

**edema** excess fluid in the interstitial space.

**efficacy** a drug’s ability to cause the expected response.

**egophony** abnormal change in tone of patient’s transmitted voice sounds.

**ejection fraction** ratio of blood pumped from the ventricle to the amount remaining at the end of diastole.

**electrolyte** a substance that, in water, separates into electrically charged particles.

**emancipated minor** a person under 18 years of age who is married, pregnant, a parent, a member of the armed forces, or financially independent and living away from home.

**embolus** foreign particle in the blood.

**emergency medical dispatcher (EMD)** EMS person medically and technically trained to assign emergency medical resources to a medical emergency.

**emergency medical responders (EMR)** are responders who provide first-aid skills until more advanced personnel arrive.

**emergency medical services (EMS) system** a comprehensive network of personnel, equipment, and resources established for the purpose of delivering aid and emergency medical care to the community.

**empathy** identification with and understanding of another’s situation, feelings, and motives.

**EMS communications officer** notifies hospitals of incoming patients from an MCI; reports to the transport officer and may also be called the EMS COM or MED COM.
**EMT-Tacticals (EMT-Ts)** EMS personnel trained to serve with a tactical Emergency Medical Services or a law enforcement agency.

**encode** to create a message.

**endometrium** the inner layer of the uterine wall where the fertilized egg implants.

**endotoxins** molecules in the walls of certain gram-negative bacteria that are released when the bacterium dies or is destroyed, causing toxic (poisonous) effects on the host body.

**endotracheal intubation** passing a tube into the trachea to protect and maintain the airway and to permit medication administration and deep suctioning.

**enema** a liquid bolus of medication that is injected into the rectum.

**enteral drug administration** the delivery of any medication that is absorbed through the gastrointestinal tract.

**enteral route** delivery of a medication through the gastrointestinal tract.

**epidemiology** the study of factors that influence the frequency, distribution, and causes of injury, disease, and other health-related events in a population.

**epidermis** outermost layer of the skin comprising dead or dying cells.

**epididymis** small sac in which sperm cells are stored.

**epiphyseal plate** area of the metaphysis where cartilage is generated during bone growth in childhood; growth plate.

**epiphysis** end of a long bone, including the epiphysyeal, or growth plate and supporting structures underlying the joint.

**epithelial tissue** the protective tissue that lines internal and external body tissues. Examples: skin, mucous membranes, the lining of the intestinal tract.

**erythrocyte** red blood cell.

**erythropoiesis** the process of producing red blood cells.

**erythropoietin** a hormone produced by kidney cells that stimulates maturation of red blood cells.

**ethics** the rules or standards that govern the conduct of members of a particular group or profession.

**ethnocentrism** viewing your own life as the most desirable, acceptable, or best, and acting in a superior manner to another culture’s way of life.

**eustachian tube** a tube that connects the ear with the nasal cavity.

**excitability** ability of the cells to respond to an electrical stimulus.

**exotoxin** a soluble poisonous substance secreted during growth of a bacterium.

**expectorant** medication intended to increase the productivity of a cough.
exposure any occurrence of blood or body fluids coming in contact with nonintact skin, mucous membranes, or parenteral contact (needle stick).

expressed consent verbal, nonverbal, or written communication by a patient that she wants to receive medical care.

extension tubing IV tubing used to extend a macrodrip or microdrip setup.

extension bending motion that increases the angle between articulating elements.

extracellular fluid (ECF) the fluid outside the body cells. Extracellular fluid comprises intravascular fluid and interstitial fluid.

extrapyramidal symptoms (EPS) common side effects of antipsychotic medications that include muscle tremors and parkinsonism-like effects.

extravasation leakage of fluid or medication from the blood vessel that is commonly found with infiltration.

extravascular outside the vein.

extrication group or branch responsible for removing patients from entanglements and transferring them to the treatment area; also known as rescue, or use of force to free a patient from entrapment.

facilitated diffusion diffusion of a substance, such as glucose, through a cell membrane that requires the assistance of a “helper,” or carrier protein.

facilities unit selects and maintains areas used for rehabilitation and command.

facsimile machine device for electronically transmitting and receiving printed information.

fallopian tubes thin tubes that extend laterally from the uterus and conduct eggs from the ovaries into the uterine cavity.

false imprisonment intentional and unjustifiable detention of a person without consent or other legal authority.

fasciculus small bundle of muscle fibres.

fatty change a result of cellular injury and swelling in which lipids (fat vesicles) invade the area of injury; occurs most commonly in the liver.

feedback a response to a message.

fibrinolysis the process through which plasmin dismantles a blood clot.

fibroblasts cells that secrete collagen, a critical factor in wound healing.

field diagnosis prehospital evaluation of the patient’s condition and its causes, based on your history and physical assessment.

filtrate the fluid produced in Bowman’s capsule by filtration of blood.
filtration movement of water out of the plasma across the capillary membrane into the interstitial space; movement of molecules across a membrane from an area of higher pressure to an area of lower pressure.

finance and administration is responsible for maintaining records for personnel, time, and costs of resources or procurement; reports directly to the IC.

FiO2 concentration of oxygen in inspired air.

first-pass effect the liver’s partial or complete inactivation of a drug before it reaches the systemic circulation.

flanks the part of the back below the ribs and above the hip bones.

flexion bending motion that reduces the angle between articulating elements.

focused and problem-oriented secondary assessment process based on primary assessment and chief complaint.

free drug availability proportion of a drug available in the body to cause either desired or undesired effects.

gag reflex mechanism that stimulates retching, or striving to vomit, when the soft palate is touched.

galea aponeurotica connective tissue sheet covering the superior aspect of the cranium.

gauge the size of a needle’s diameter.

general adaptation syndrome (GAS) a sequence of stress response stages: stage I, alarm; stage II, resistance or adaptation; stage III, exhaustion.

general impression your initial, intuitive evaluation of your patient.

glomerular filtration rate (GFR) the volume per day at which blood is filtered through capillaries of the glomerulus.

glomerular filtration the removal from blood of water and other elements, which enter the nephron tubule.

glomerulus a tuft of capillaries from which blood is filtered into a nephron.

glottis lip-like opening between the vocal cords.

glucagon substance that increases blood glucose level.

glucometer tool used to measure blood glucose level.

gluconeogenesis conversion of protein and fat to form glucose.

glycogenolysis the breakdown of glycogen to glucose, primarily by liver cells.

gold standard ultimate standard of excellence.

Good Samaritan laws laws that provide immunity to certain people who assist at the scene of a medical emergency.
granuloma a tumour or growth that forms when foreign bodies that cannot be destroyed by macrophages are surrounded and walled off.

great vessels the large arteries and veins located in the mediastinum that enter and exit the heart; the aorta, superior and inferior vena cava, pulmonary arteries, and pulmonary veins.

grey matter areas in the central nervous system dominated by nerve cell bodies; the central portion of the spinal cord.

Grey-Turner’s sign discoloration over the flanks suggesting intra-abdominal bleeding.

gtts drops (Latin guttae, drops [gutta, drop]).

hate crimes crimes committed against a person wholly on the basis of the individual’s actual or perceived race, colour, national origin, ethnicity, gender, disability, or sexual orientation.

haversian canals small perforations of the long bones through which the blood vessels and nerves travel into the bone itself.

hazardous material (hazmat) any substance that causes adverse health effects on exposure to humans.

health-care professional a properly trained and licensed or certified provider of health care.

heat escape lessening position (HELP) an in-water, head-up tuck or fetal position designed to reduce heat loss by as much as 60 percent.

HEENT head, eyes, ears, nose, and throat.

hematemesis vomiting blood.

hematocrit the percentage of the blood occupied by erythrocytes.

hematopoietic system body system having to do with the production and development of blood cells, consisting of the bone marrow, liver, spleen, kidneys, and the blood itself.

hematopoiesis the process through which pluripotent stem cells differentiate into various types of blood cells.

hematuria blood in the urine.

hemoconcentration elevated numbers of red and white blood cells.

hemoglobin oxygen-bearing molecule in the red blood cells. It is made up of iron-rich red pigment called heme and a protein called globin.

hemolysis destruction of red blood cells.

hemoptysis coughing up blood.

hemostasis the combined mechanisms that work to prevent or control blood loss.

hemotherrax accumulation in the pleural cavity of blood or fluid containing blood.
**heparin lock** peripheral IV port that does not use a bag of fluid.

**hepatic alteration** change in a medication’s chemical composition that occurs in the liver.

**hilum** the notched part of the kidney where the ureter and other structures join kidney tissue.

**histamine** a substance released during the degranulation of mast cells and also released by basophils that, through constriction and dilation of blood vessels, increases blood flow to the injury site due to vasodilation and also increases the permeability of capillary walls.

**HIV** *human immunodeficiency virus*, a virus that breaks down the immune defenses, making the body vulnerable to a variety of infections and disorders. *See also* AIDS.

**hollow-needle catheter** stylet that does not have a Teflon tube but is itself inserted into the vein and secured there.

**homeostasis** the natural tendency of the body to maintain a steady and normal internal environment.

**hot zone** location at a hazmat incident where the actual hazardous material and highest levels of contamination exist; also called the red zone or the exclusionary zone.

**Huber needle** needle that has an opening on the side of the shaft instead of the tip.

**humoral immunity** the long-term immunity to an antigen provided by antibodies produced by B lymphocytes.

**hydrolysis** the breakage of a chemical bond by adding water, or by incorporating a hydroxyl (OH\_) group into one fragment and a hydrogen ion (H\_) into the other.

**hydrostatic pressure** blood pressure or force against vessel walls created by the heart beat. Hydrostatic pressure tends to force water out of the capillaries into the interstitial space.

**hypercarbia** excess carbon dioxide in the blood.

**hyperosmolar** a solution that has a concentration of the substance greater than that of a second solution.

**hyperplasia** an increase in number of cells resulting from an increased workload.

**hypersensitivity** an exaggerated and harmful immune response; an umbrella term for allergy, autoimmunity, and isoimmunity.

**hypertension** blood pressure higher than normal.

**hyperthermia** increase in body’s core temperature.

**hypertonic** having a greater concentration of solute molecules; one solution may be hypertonic to another.

**hypertrophy** an increase in cell size resulting from an increased workload.
**hypnosis** instigation of sleep.

**hypodermic needle** hollow metal tube used with syringe to administer medications.

**hypo-osmolar** a solution that has a concentration of the substance lower than that of a second solution.

**hypoperfusion** inadequate perfusion of the body tissues, resulting in an inadequate supply of oxygen and nutrients to the body tissues. Also called *shock*.

**hypotension** lower than normal systolic and diastolic blood pressure.

**hypothalamus** portion of the brain important for controlling certain metabolic activities, including the regulation of body temperature.

**hypothermia** decrease in body’s core temperature.

**hypotonic** having a lesser concentration of solute molecules; one solution may be hypotonic to another.

**hypoventilation** reduction in breathing rate and depth.

**hypovolemic shock** shock caused by a loss of intravascular fluid volume.

**hypoxemia** decreased blood oxygen level.

**hypoxia** oxygen deficiency.

**hypoxic drive** mechanism that increases respiratory stimulation when blood oxygen falls and inhibits respiratory stimulation when blood oxygen climbs.

**immediate hypersensitivity reaction** a swiftly occurring hypersensitivity reaction (that occurs after reexposure to an antigen). Immediate hypersensitivity reactions are usually more severe than delayed reactions. The swiftest and most severe of such reactions is anaphylaxis.

**immune response** the body’s reactions that inactivate or eliminate foreign antigens.

**immunity** (1) exemption from legal liability. (2) a longterm condition of protection from infection or disease; the body’s ability to respond to the presence of a pathogen.

**immunogens** antigens that are able to trigger an immune response.

**implied consent** consent for treatment that is presumed for a patient who is mentally, physically, or emotionally unable to grant consent. Also called *emergency doctrine*.

**impulsive** acting instinctively without stopping to think.

**incident management system (IMS)** national system used for the management of multiple casualty incidents, involving assumption of responsibility for command and designation and coordination of such elements as triage, treatment, transport, and staging; sometimes called the incident command system.

**incubation period** the time between contact with a disease organism and the appearance of the first symptoms.
index of suspicion your anticipation of possible injuries based upon your analysis of the event.

infectious disease any disease caused by the growth of pathogenic microorganisms, which may be spread from person to person.

inflammation the body’s response to cellular injury; also called the inflammatory response. In contrast to the immune response, inflammation develops swiftly, is nonspecific (attacks all unwanted substances in the same way), and is temporary, leading to healing.

inflammatory process a nonspecific defense mechanism that wards off damage from microorganisms or trauma.

informed consent consent for treatment that is given based on full disclosure of information.

infusion controller gravity-flow device that regulates fluid’s passage through an electromechanical pump.

infusion pump device that delivers fluids and medications under positive pressure.

infusion rate speed at which a medication is delivered intravenously.

infusion liquid medication delivered through a vein.

inhalation drawing of medication into the lungs along with air during breathing.

injection placement of medication in or under the skin with a needle and syringe.

injury risk a situation that puts people in danger of sustaining injury.

injury intentional or unintentional damage to a person resulting from exposure to mechanical or any other form of energy or from absence of essentials such as heat and oxygen.

injury-surveillance program ongoing systematic collection, analysis, and interpretation of injury data important to public health practice.

inotropy pertaining to cardiac contractile force.

insertion attachment of a muscle to a bone that moves when the muscle contracts.

inspection the process of informed observation.

insulin substance that decreases blood glucose level.

intercalated discs specialized bands of tissue inserted between myocardial cells that increase the rate in which the action potential is spread from cell to cell.

intermittent claudication intermittent calf pain while walking that subsides with rest.

interstitial fluid the fluid in body tissues that is outside the cells and outside the vascular system.

intervener physician a licensed physician, professionally unrelated to patients on scene, who attempts to assist EMS providers with patient care.
intervertebral disc cartilaginous pad between vertebrae that serves as a shock absorber.
intracellular fluid (ICF) the fluid inside the body cells.
intracranial pressure (ICP) pressure exerted on the brain by the blood and cerebrospinal fluid.
intradermal within the dermal layer of the skin.
intramuscular within the muscle.
intraosseous within the bone.
intravascular fluid the fluid within the circulatory system; blood plasma.
intravenous access (cannulation) surgical puncture of a vein to deliver medication or withdraw blood.
intravenous fluid chemically prepared solution tailored to the body’s specific needs.
involuntary consent consent to treatment granted by the authority of a court order.
ion a charged particle; an atom or group of atoms whose electrical charge has changed from neutral to positive or negative by losing or gaining one or more electrons. (In an atom’s normal, nonionized state, its positively charged protons and negatively charged electrons balance each other so that the atom’s charge is neutral.)
ionize to become electrically charged or polar.
iris pigmented portion of the eye. It is the muscular area that constricts or dilates to change the size of the pupil.
irreversible antagonism a competitive antagonist permanently binds with a receptor site.
irreversible shock shock that has progressed so far that no medical intervention can reverse the condition and death is inevitable.
ischemia a blockage in the delivery of oxygenated blood to the cells.
isoimmunity an immune response to antigens from another member of the same species, for example Rh reactions between a mother and her infant or transplant rejections; also called alloimmunity.
isometric exercise active exercise performed against stable resistance, in which muscles are exercised in a motionless manner.
isotonic exercise active exercise during which muscles are worked through their range of motion.
isotonic equal in concentration of solute molecules; solutions may be isotonic to each other.
jargon language used by a particular group or profession.
joint capsule the ligaments that surround a joint; synovial capsule.
joint area where adjacent bones articulate.
justice the obligation to treat all patients fairly.

kidney an organ that produces urine and performs other functions related to the urinary system.

Korotkoff sounds sounds of blood hitting arterial walls.

labia structures that protect the vagina and urethra, including the labia majora and the labia minora.

lacrimal fluid liquid that lubricates the eye.

laminae posterior bones of a vertebra that help make up the foramen, or opening, of the spinal canal.

larynx the complex structure that joins the pharynx with the trachea.

laxative medication used to decrease stool’s firmness and increase its water content.

leading questions questions framed to guide the direction of a patient’s answers.

legislative law law created by such law-making bodies as federal and provincial or territorial assemblies. Also called statutory law.

lesion any disruption in normal tissue.

leukocyte white blood cell.

leukopoiesis the process through which stem cells differentiate into the white blood cells’ immature forms.

leukotrienes also called slow-reacting substances of anaphylaxis (SRS-A); substances synthesized by mast cells during inflammatory response that cause vasoconstriction, vascular permeability, and chemotaxis; mediators released from mast cells upon contact with allergens.

leur lock adapter with a rubber-covered needle used to puncture a blood tube’s self-sealing top.

leur sampling needle long, exposed needle that screws into the vacutainer and is inserted directly into the vein.

liability legal responsibility.

liaison officer coordinates all incident operations that involve outside agencies.

libel the act of injuring a person’s character, name, or reputation by false statements made in writing or through the mass media with malicious intent or reckless disregard for the falsity of those statements.

licensure the process by which a regulatory agency grants permission to engage in a given occupation to an applicant who has attained the degree of competency required to ensure the public’s protection.

ligaments connective tissue that connects bone to bone and holds joints together.
**ligamentum arteriosum** cord-like remnant of a fetal vessel connecting the pulmonary artery to the aorta at the aortic isthmus.

**living will** a legal document that allows a person to specify the kinds of medical treatment she wishes to receive should the need arise.

**local effects** effects involving areas around the immediate site; should be evaluated based on the burn model.

**local** limited to one area of the body.

**logistics** supports incident operations, coordinating procurement and distribution of all medical resources.

**lymphatic system** a network of valveless vessels that drain fluid, called lymph, from the body tissues. Lymph nodes help filter impurities en route to the subclavian vein and thence to the heart.

**lymphocyte** a type of leukocyte, or white blood cell, that attacks foreign substances as part of the body’s immune response.

**macrodrip tubing** administration tubing that delivers a relatively large amount of fluid.

**major basic protein (MBP)** a larvacidal peptide.

**major trauma patient** person who has suffered significant mechanism of injury.

**malfeasance** a breach of duty by performance of a wrongful or unlawful act.

**management staff** officers that handle public information, safety, outside liaisons, and critical stress debriefing; also known as the command staff.

**mandible** the jawbone.

**manometer** pressure gauge with a scale calibrated in millimeters of mercury (mmHg).

**mast cells** large cells, resembling bags of granules, that reside near blood vessels. When stimulated by injury, chemicals, or allergic responses, they activate the inflammatory response by degranulation (emptying their granules into the extracellular environment) and synthesis (construction of leukotrienes and prostaglandins).

**material safety data sheets (MSDS)** easily accessible sheets of detailed information about chemicals found at fixed facilities.

**maxilla** bone of the upper jaw.

**measured volume administration set** IV setup that delivers specific volumes of fluid.

**mechanism of injury** combined strength, direction, and nature of forces that injured your patient.

**medical direction** medical policies, procedures, and practices that are available to providers either online or offline.

**medical director** a physician who is legally responsible for all of the clinical and patient-care aspects of an EMS system. Also referred to as *medical direction*.
**medical supply unit** coordinates procurement and distribution of equipment and supplies at an MCI.

**medically clean** careful handling to prevent contamination.

**medicated solution** parenteral medication packaged in an IV bag and administered as an IV infusion.

**medication injection port** a self-sealing membrane into which a hypodermic needle is inserted for drug administration.

**medulla oblongata** lower portion of the brainstem, containing the respiratory, cardiac, and vasomotor centres.

**medulla** the inner tissue of an organ, such as the kidney.

**medullary canal** cavity within a bone that contains the marrow.

**menarche** the onset of menses, usually occurring between ages 10 and 14.

**meninges** three membranes that surround and protect the brain and spinal cord. They are the dura mater, pia mater, and arachnoid membrane.

**menopause** the cessation of menses and ovarian function due to decreased secretion of estrogen.

**menstruation** sloughing of the uterine lining (endometrium) if a fertilized egg is not implanted. It is controlled by the cyclical release of hormones. Menstruation is also called a *period*.

**mesentery** double fold of peritoneum that supports the major portion of the small bowel, suspending it from the posterior abdominal wall.

**metabolic acidosis** acidity caused by an increase in acid, often because of increased production of acids during metabolism or from causes such as vomiting, diarrhea, diabetes, or medication.

**metabolic alkalosis** alkalinity caused by an increase in plasma bicarbonate resulting from causes including diuresis, vomiting, or ingestion of too much sodium bicarbonate.

**metabolism** the total changes that take place during physiological processes.

**metaphysis** growth zone of a bone, active during the development stages of youth. It is located between the epiphysis and the diaphysis.

**metaplasia** replacement of one type of cell by another type of cell that is not normal for that tissue.

**metered dose inhaler** handheld device that produces a medicated spray for inhalation.

**microdrip tubing** administration tubing that delivers a relatively small amount of fluid.

**midbrain** portion of the brain connecting the pons and cerebellum with the cerebral hemispheres.
minimum effective concentration minimum level of a drug needed to cause a given effect.

minimum standards lowest or least allowable standards.

minor depending on provincial or territorial law, this is usually a person under the age of 18.

misfeasance a breach of duty by performance of a legal act in a manner that is harmful or injurious.

mitosis cell division with division of the nucleus; each daughter cell contains the same number of chromosomes as the mother cell. Mitosis is the process by which the body grows.

mobile data terminal vehicle-mounted computer keyboard and display.

mons pubis fatty layer of tissue over the pubic symphysis.

morals social, religious, or personal standards of right and wrong.

morgue area where deceased victims of an incident are collected.

morgue officer person who supervises the morgue; may report to the triage officer or the treatment officer.

mucolytic medication intended to make mucus more watery.

mucous membrane tissues lining body cavities that communicate with the air; usually contain small, mucus-secreting cells.

mucus slippery secretion that lubricates and protects airway surfaces.

multiple-casualty incident (MCI) incident that generates large numbers of patients and that often makes traditional EMS response ineffective because of special circumstances surrounding the event; also known as a mass-casualty incident.

multiple organ dysfunction syndrome (MODS) progressive impairment of two or more organ systems resulting from an uncontrolled inflammatory response to a severe illness or injury.

multiplex duplex system that can transmit voice and data simultaneously.

muscle tissue tissue that is capable of contraction when stimulated. There are three types of muscle tissue: cardiac (myocardium, or heart muscle), smooth (within intestines, surrounding blood vessels), and skeletal, or striated (allows skeletal movement). Skeletal muscle is mostly under voluntary, or conscious, control; smooth muscle is under involuntary, or unconscious, control; cardiac muscle is capable of spontaneous, or self-excited, contraction.

mutual aid agreements or plans for sharing departmental resources.

myometrium the thick middle layer of the uterine wall made up of smooth muscle fibres.

myotome muscle and tissue of the body innervated by spinal nerve roots.
nares the openings of the nostrils.
nasal medication drug administered through the mucous membranes of the nose.
nasal septum cartilage that separates the right and left nasal cavities.
nasolacrimal duct narrow tube that carries into the nasal cavity tears and debris that have drained from the eye.
natural immunity inborn protection against infection or disease.
nebulizer inhalation aid that disperses liquid into aerosol spray or mist.
necrosis cell death; a pathological cell change; the sloughing off of dead tissue. Four types of necrotic cell change are coagulative, liquefactive, caseous, and fatty. Gangrenous necrosis refers to tissue death over a wide area.
needle adapter rigid plastic device specifically constructed to fit into the hub of an intravenous cannula.
negative feedback loop body mechanisms that work to reverse, or compensate for, a pathophysiological process, (or to reverse any physiological process, whether pathological or nonpathological).
negative feedback a mechanism of response that serves to maintain a state of internal constancy, or homeostasis. Changes in the internal environment trigger mechanisms that reverse or negate the change, hence the term “negative feedback.”
negligence deviation from accepted standards of care recognized by law for the protection of others against the unreasonable risk of harm.
nephron a microscopic structure within kidney that produces urine.
nerve tissue tissue that transmits electrical impulses throughout the body.
net filtration the total loss of water from blood plasma across the capillary membrane into the interstitial space. Normally, hydrostatic pressure forcing water out of the capillary is balanced by oncotic force pulling water into the capillary for a net filtration of zero.
neuroeffector junction specialized synapse between a nerve cell and the organ or tissue it innervates.
neurogenic shock shock resulting from brain or spinal cord injury that causes an interruption of nerve impulses to the arteries with loss of arterial tone, dilation, and relative hypovolemia.
neuroleptanesthesia anesthesia that combines decreased sensation of pain with amnesia while the patient remains conscious.
neuroleptic antipsychotic (literally, affecting the nerves).
neuron nerve cell; the fundamental component of the nervous system.
**neurotransmitter** a substance that is released from the axon terminal of the presynaptic neuron on excitation and that travels across the synaptic cleft to either excite or inhibit the target cell. Examples include acetylcholine, norepinephrine, and dopamine.

**neutropenia** a low neutrophil count.

**nocturia** excessive urination at night.

**noncompetitive antagonism** the binding of an antagonist causes a deformity of the binding site that prevents an agonist from fitting and binding.

**nonconstituted drug vial/Mix-o-Vial** vial with two containers, one holding a powdered medication and the other holding a liquid mixing solution.

**nonfeasance** a breach of duty by failure to perform a required act or duty.

**nonmalfeasance** the obligation not to harm the patient.

**nonverbal communication** gestures, mannerisms, and postures by which a person communicates with others; also called *body language*.

**nucleus** the organelle within a cell that contains the DNA, or genetic material; in the cells of higher organisms, the nucleus is surrounded by a membrane.

**ocular medication** drug administered through the mucous membranes of the eye.

**offline medical direction** refers to medical policies, procedures, and practices that medical direction has set up in advance of a call.

**oncotic force** a form of osmotic pressure exerted by the large protein particles, or colloids, present in blood plasma. In the capillaries, the plasma colloids tend to pull water from the interstitial space across the capillary membrane into the capillary. Oncotic force is also called *colloid osmotic pressure*.

**online medical direction** occurs when a qualified physician gives direct orders to a prehospital care provider by either radio or telephone.

**onset of action** the time from administration until a medication reaches its minimum effective concentration.

**open incident** an incident that has the potential to generate additional patients; also known as an uncontained incident or an unstable incident.

**open-ended questions** questions that permit unguided, spontaneous answers.

**open stance** a posture or body position that is relaxed and suggests confidence, ease, warmth, and attentiveness.

**operations** carries out directions from command and does the actual work at an incident.

**ophthalmoscope** handheld device used to examine interior of eye.

**opposition** pairing of muscles that permits extension and flexion of limbs.

**oral drug administration** the delivery of any medication that is taken by mouth and swallowed into the lower gastrointestinal tract.
orbit the eye socket.

ordnance military weapons and munitions.

organ system a group of organs that work together. Examples: the cardiovascular system, formed of the heart, blood vessels, and blood; the gastrointestinal system, comprising the mouth, salivary glands, esophagus, stomach, intestines, liver, pancreas, gall bladder, rectum, and anus.

organ a group of tissue functioning together. Examples: heart, liver, brain, ovary, eye.

organelles structures that perform specific functions within a cell.

organism the sum of all the cells, tissues, organs, and organ systems of a living being. Examples: the human organism, a bacterial organism.

origin attachment of a muscle to a bone that does not move (or experiences the least movement) when the muscle contracts.

orthopnea difficulty in breathing while lying supine.

osmolality the concentration of solute per kilogram of water. See also osmolarity.

osmolarity the concentration of solute per litre of water (often used synonymously with osmolality).

osmosis the passage of a solvent, such as water, through a membrane; the diffusion pattern of water in which molecules move to equalize concentrations on both sides of a membrane; movement of solvent in a solution from an area of lower solute concentration to an area of higher solute concentration.

osmotic diuresis greatly increased urination and dehydration that results when high levels of glucose cannot be reabsorbed into the blood from the kidney tubules, and the osmotic pressure of the glucose in the tubules also prevents water reabsorption.

osmotic gradient the difference in concentration between solutions on opposite sides of a semipermeable membrane.

osmotic pressure the pressure exerted by the concentration of solutes on one side of a membrane that, if hypertonic, tends to “pull” water (cause osmosis) from the other side of the membrane.

osteoblast cell that helps in the creation of new bone during growth and bone repair.

osteoclast bone cell that absorbs and removes excess bone.

osteocyte bone-forming cell found in the bone matrix that helps maintain the bone.

otoscope handheld device used to examine interior of ears and nose.

ovaries the primary female sex glands, which secrete estrogen and progesterone and produce eggs for reproduction.

overhydration the presence or retention of an abnormally high amount of body fluid.
over-the-needle catheter/angiocatheter semi-flexible catheter enclosing a sharp metal stylet.

ovulation the release of an egg from the ovary.

oxidation the loss of hydrogen atoms or the acceptance of an oxygen atom. This increases the positive charge (or lessens the negative charge) on the molecule.

PA alveolar partial pressure.

Pa arterial partial pressure.

palpation using your sense of touch to gather information.

papilla the tip of a pyramid; it juts into the hollow space of the kidney.

parasympathetic nervous system division of the autonomic nervous system that is responsible for controlling vegetative functions. Parasympathetic nervous system actions include decreased heart rate and constriction of the bronchioles and pupils. Its actions are mediated by the neurotransmitter acetylcholine.

parasympatholytic drug or other substance that blocks or inhibits the actions of the parasympathetic nervous system. Also called anticholinergic.

parasympathomimetic drug or other substance that causes effects like those of the parasympathetic nervous system. Also called cholinergic.

parenchyma principle or essential parts of an organ.

parenteral drug administration outside the gastrointestinal tract.

parenteral route delivery of a medication outside of the gastrointestinal tract, typically using needles to inject medications into the circulatory system or tissues.

paroxysmal nocturnal dyspnea sudden onset of shortness of breath at night.

partial pressure the pressure exerted by each component of a gas mixture.

particulate evidence such evidence as hairs or fibres that cannot be readily seen with the human eye; also known as microscopic evidence or trace evidence.

passive transport movement of a substance without the use of energy.

pathogens microorganisms capable of producing infection or disease, such as bacteria and viruses.

pathology the study of disease and its causes.

pathophysiology the study of how disease affects normal body processes.

patient assessment problem-oriented evaluation of patient and establishment of priorities based on existing and potential threats to human life.

patient interview interaction with a patient for the purpose of obtaining in-depth information about the emergency and the patient’s pertinent medical history.

pCO₂ partial pressure of carbon dioxide (partial pressure defined—see pO₂).
**peak load** the highest volume of calls at a given time.

**pedicles** thick, bony struts that connect the vertebral bodies with the spinous and transverse processes and help make up the opening for the spinal canal.

**peer review** an evaluation of the quality of emergency care administered by an individual, which is conducted by that individual’s peers (others of equal rank). Also, an evaluation of articles submitted for publication.

**pelvic space** division of the abdominal cavity containing those organs located within the pelvis.

**penis** male organ of copulation.

**percussion** the production of sound waves by striking one object against another.

**perforating canals** structures through which blood vessels enter and exit the bone shaft.

**perfusion** the supplying of oxygen and nutrients to the body tissues as a result of the constant passage of blood through the capillaries.

**perimetrium** the serosal peritoneal membrane which forms the outermost layer of the uterine wall.

**perineum** muscular tissue that separates the vagina and the anus.

**periorbital ecchymosis** black and blue discoloration surrounding the eye sockets.

**periosteum** the tough exterior covering of a bone.

**peripheral nervous system** part of the nervous system that extends throughout the body and is composed of the cranial nerves arising from the brain and the peripheral nerves arising from the spinal cord. Its subdivisions are the somatic and the autonomic nervous systems.

**peripheral vascular resistance** the resistance of the vessels to the flow of blood: increased when the vessels constrict, decreased when the vessels relax.

**peripheral venous access** surgical puncture of a vein in the arm, leg, or neck.

**peripherally inserted central catheter (PICC)** line threaded into the central circulation via a peripheral site.

**peristalsis** wave-like muscular motion of the esophagus and bowel that moves food through the digestive system.

**peritoneal space** division of the abdominal cavity containing those organs or portions of organs covered by the peritoneum.

**peritoneum** fine fibrous tissue surrounding the interior of most of the abdominal cavity and covering most of the small bowel and some of the abdominal organs.

**personal protective equipment (PPE)** equipment used by EMS personnel to protect against injury and the spread of infectious disease.
**pH** abbreviation for *potential of hydrogen*. A measure of relative acidity or alkalinity. Since the pH scale is inverse to the concentration of acidic hydrogen ions, the lower the pH, the greater is the acidity; the higher the pH, the greater is the alkalinity. A normal pH range is 7.35 to 7.45.

**phagocytosis** process in which white blood cells engulf and destroy an invader.

**pharmacodynamics** how a drug interacts with the body to cause its effects.

**pharmacokinetics** how drugs are transported into and out of the body.

**pharmacology** the study of drugs and their interactions with the body.

**pharynx** a muscular tube that extends vertically from the back of the soft palate to the superior aspect of the esophagus.

**physiological stress** a chemical or physical disturbance in the cells or tissue fluid produced by a change in the external environment or within the body.

**physiology** the functions of an organism; the physical and chemical processes of a living thing.

**pia mater** inner and most delicate layer of the meninges. It covers the convolutions of the brain and spinal cord.

**pinna** outer, visible portion of the ear.

**pitting** depression that results from pressure against skin when pitting edema is present.

**placental barrier** biochemical barrier at the maternal/fetal interface that restricts certain molecules.

**planning** provides past, present, and future information about an incident.

**plasma** the liquid part of the blood.

**plasma-level profile** describes the lengths of onset, duration, and termination of action, as well as the drug’s minimum effective concentration and toxic levels.

**pleura** membranous connective tissue covering the lungs.

**pleural friction rub** the squeaking or grating sound of the pleural linings rubbing together.

**pluripotent stem cell** a cell from which the various types of blood cells can form.

**pneumothorax** accumulation of air or gas in the pleural cavity.

**Poiseuille’s law** a law of physiology stating that blood flow through a vessel is directly proportional to the radius of the vessel to the fourth power.

**polyuria** excessive urination.

**pons** process of tissue responsible for the communication interchange between the cerebellum, the cerebrum, midbrain, and the spinal cord.
posterior medial sulcus shallow longitudinal groove along the dorsal surface of the spinal cord.

postganglionic nerves nerve fibres that extend from the autonomic ganglia to the target tissues.

pO₂ partial pressure of oxygen; \( \text{partial pressure} \) is the pressure exerted by a given component of a gas containing several components.

prearrival instructions dispatcher’s instructions to caller for appropriate emergency measures.

defilled/preloaded syringe syringe packaged in a tamperproof container with the medication already in the barrel.

preganglionic nerves nerve fibres that extend from the central nervous system to the autonomic ganglia.

prehospital care report (PCR) the written record of an EMS response.

preload the pressure within the ventricles at the end of diastole, commonly called the \( \text{end-diastolic volume} \).

premenstrual syndrome (PMS) a variety of signs and symptoms, such as weight gain, irritability, or specific food cravings associated with the changing hormonal levels that precede menstruation.

primary area of responsibility (PAR) stationing of ambulances at specific high-volume locations.

primary assessment prehospital process designed to identify and correct life-threatening airway, breathing, and circulation problems.

primary contamination direct exposure of a person or item to a hazardous substance.

primary prevention keeping an injury from ever occurring.

primary problem the underlying cause for your patient’s symptoms.

primary triage triage that takes place early in the incident, usually on first arrival.

priority dispatching system using medically approved questions and predetermined guidelines to determine the appropriate level of response.

prodrug (parent drug) medication that is not active when administered, but whose biotransformation converts it into active metabolites.

profession refers to the existence of a specialized body of knowledge or skills.

professionalism refers to the conduct or qualities that characterize a practitioner in a particular field or occupation.

prostaglandins substances synthesized by mast cells during inflammatory response that cause vasoconstriction, vascular permeability, and chemotaxis and also cause pain. Prostaglandins also act to control inflammation by suppressing release of histamine and lysosomal enzymes.
prostate gland gland that surrounds the male urinary bladder neck and the first portion of urethra and is a major source of the fluid that combines with sperm cells to make semen.

protocols the policies and procedures for all components of an EMS system; principles for managing certain patient conditions.

prototype drug that best demonstrates the class’s common properties and illustrates its particular characteristics.

proximal tubule the part of the nephron tubule beyond Bowman’s capsule.

proximate cause action or inaction of the paramedic that immediately caused or worsened the damage suffered by the patient.

PSAP public safety answering point.

pseudo-instinctive learned actions that are practised until they can be done without thinking.

psychoneuroimmunological regulation the interactions of psychological, neurological, endocrinological, and immunological factors that contribute to alteration of the immune system as an outcome of a stress response that is not quickly resolved.

psychotherapeutic medication drug used to treat mental dysfunction.

public information officer (PIO) collects data about the incident and releases it to the press.

pulmonary embolism blood clot that travels to the pulmonary circulation and hinders oxygenation of the blood.

pulmonary hilum central medial region of the lung where the bronchi and pulmonary vasculature enter the lung.

pulse oximeter noninvasive device that measures the oxygen saturation of blood.

pulse pressure difference between the systolic and diastolic blood pressures.

pulse quality strength, which can be weak, thready, strong, or bounding.

pulse rate number of pulses felt in one minute.

pulse rhythm pattern and equality of intervals between beats.

pupil dark opening in the centre of the iris through which light enters the eye.

pus a liquid mixture of dead cells, bits of dead tissue, and tissue fluid that may accumulate in inflamed tissues.

pyramids the visible tissue structures within the medulla of the kidney.

pyrogen foreign protein capable of producing fever.

quality assurance (QA) a program designed to maintain continuous monitoring and measurement of the quality of clinical care delivered to patients.
quality improvement (QI) an evaluation program that emphasizes service and uses customer satisfaction as the ultimate indicator of system performance.

quality of respiration depth and pattern of breathing.

radio band a range of radio frequencies.

radio frequency the number of times per minute a radio wave oscillates.

rapid intervention team ambulance and crew dedicated to stand by in case a rescuer becomes ill or injured.

rapid trauma assessment quick check for signs of serious injury.

reabsorption the movement of a substance from a nephron tubule back into the blood.

reasonable force the minimal amount of force necessary to ensure that an unruly or violent person does not cause injury to herself or to others.

receptor specialized protein that combines with a drug resulting in a biochemical effect.

reciprocity the process by which an agency grants automatic certification or licensure to an individual who has comparable certification or licensure from another agency.

recirculating current movement of currents over a uniform obstruction; also known as a “drowning machine.”

red bone marrow tissue within the internal cavity of a bone responsible for manufacture of erythrocytes and other blood cells.

referred pain pain that is felt at a location away from its source.

reflective acting thoughtfully, deliberately, and analytically.

renal pelvis the hollow space of the kidney that junctions with a ureter.

renin an enzyme produced by kidney cells that plays a key role in controlling arterial blood pressure.

repair healing of a wound with scar formation.

repolarization return of a muscle cell to its pre-excitation resting state.

reportable collisions collisions that involve more than $1000 in damage or a personal injury.

res ipsa loquitur a legal doctrine invoked by plaintiffs to support a claim of negligence, it is a Latin term that means “the thing speaks for itself.”

reserve capacity the ability of an EMS agency to respond to calls beyond those handled by the on-duty crews.

resolution the complete healing of a wound and return of tissues to their normal structure and function; the ending of inflammation with no scar formation.
respiration the exchange of gases between a living organism and its environment; exchange of oxygen and carbon dioxide during inhalation and exhalation in the lungs and at the cellular level.

respiratory acidosis acidity caused by abnormal retention of carbon dioxide resulting from impaired ventilation.

respiratory alkalosis alkalinity caused by excessive elimination of carbon dioxide resulting from increased respirations.

respiratory effort how hard the patient works to breathe.

respiratory rate the number of times a person breathes in one minute.

response time time between when a unit is alerted until it arrives on the scene.

resting potential the normal electrical state of cardiac cells.

reticular activating system (RAS) a series of nervous tissues keeping the human system in a state of consciousness.

retina light- and colour-sensing tissue lining the posterior chamber of the eye.

retroperitoneal space division of the abdominal cavity containing those organs posterior to the peritoneal lining.

review of systems a list of questions categorized by body system.

Rh blood group a group of antigens discovered on the red blood cells of rhesus monkeys that is also present to some extent in humans.

Rh factor an antigen in the Rh blood group that is also known as antigen D. About 85 percent of North Americans have the Rh factor (are Rh positive) while about 15 do not have the Rh factor (are Rh negative). Rh positive and Rh negative blood are incompatible; that is, a person who is Rh negative can experience a severe immune response if Rh positive blood is introduced, as through a transfusion or during childbirth.

rhonchi continuous sounds with a lower pitch and a snoring quality.

rotation a turning along the axis of a bone or joint.

rules of evidence guidelines for permitting a new medication, process, or procedure to be used in EMS.

safety officer monitors all on-scene actions and ensures that they do not create any potentially harmful conditions.

scene safety doing everything possible to ensure a safe environment.

sclera the “white” of the eye.

scope of practice range of duties and skills paramedics are allowed and expected to perform.

scrambling climbing over rocks or downed trees on a steep trail without the aid of ropes. This can be especially dangerous when the surface is wet or icy.
**scree** loose pebbles or rock debris that can form on the slopes or bases of mountains; sometimes used to describe debris in sloping dry stream beds.

**sebaceous glands** glands within the dermis secreting sebum.

**sebum** fatty secretion of the sebaceous gland that helps keep the skin pliable and waterproof.

**second messenger** chemical that participates in complex cascading reactions that eventually cause a drug’s desired effect.

**secondary contamination** transfer of a hazardous substance to a noncontaminated person or item via contact with someone or something already contaminated by the substance.

**secondary prevention** medical care after an injury or illness that helps prevent further problems from occurring.

**secondary triage** triage that takes place after patients are moved to a treatment area to determine any change in status.

**secretion** the movement of a substance from the blood into a nephron tubule.

**section chief** officer who supervises major functional areas of sections; reports to the incident commander.

**sector** interchangeable name for a branch, group, or division; does not, however, designate a functional or geographical area.

**sedation** state of decreased anxiety and inhibitions.

**Sellick’s maneuver** pressure applied in a posterior direction to the anterior cricoid cartilage that occludes the esophagus.

**semantic** related to the meaning of words.

**semicircular canals** the three rings of the inner ear. They sense the motion of the head and provide positional sense for the body.

**semidecontaminated patient** another term for fielddecontaminated patient.

**semi-Fowler’s position** sitting up at 45 degrees.

**semipermeable** able to allow some, but not all, substances to pass through. Cell membranes are semipermeable.

**septic shock** shock that develops as the result of infection carried by the bloodstream, eventually causing dysfunction of multiple organ systems.

**septicemia** the systemic spread of toxins through the bloodstream. Also called *sepsis*.

**sequestration** the trapping of red blood cells by an organ, such as the spleen.

**serotonin** a substance released by platelets that, through constriction and dilation of blood vessels, affects blood flow to an injured or affected site.

**serum** solution containing whole antibodies for a specific pathogen.
**sesamoid bone** bone that forms in a tendon.

**sharps container** rigid, puncture resistant container clearly marked as a biohazard.

**shipping papers** documents routinely carried aboard vehicles transporting hazardous materials; ideally should identify specific substances and quantities carried; also known as bills of lading.

**short haul** a helicopter extrication technique where a person is attached to a rope that is, in turn, attached to a helicopter. The aircraft lifts off with the person attached to it. Obviously, this means of evacuation requires highly specialized skills.

**side effect** unintended response to a drug.

**simple diffusion** the random motion of molecules from an area of high concentration to an area of lower concentration.

**simplex** communication system that transmits and receives on the same frequency.

**singular command** process in which a single individual is responsible for coordinating an incident; most useful in single-jurisdictional incidents.

**sinus** air cavity that conducts fluids from the eustachian tubes and tear ducts to and from the nasopharynx.

**slander** act of injuring a person’s character, name, or reputation by false or malicious statements *spoken* with malicious intent or reckless disregard for the falsity of those statements.

**solvent** a substance that dissolves other substances, forming a solution.

**somatic nervous system** part of the nervous system controlling voluntary bodily functions.

**span of control** number of people or tasks that a single individual can monitor.

**Special Weapons and Tactics (SWAT) Team** a trained police unit equipped to handle hostage holders and other difficult law enforcement situations.

**sphygmomanometer** blood pressure measuring device comprising a bulb, a cuff, and a manometer.

**spike** sharp-pointed device inserted into the IV solution bag’s administration set port.

**spinal canal** opening in the vertebrae that accommodates the spinal cord.

**spinal cord** central nervous system pathway responsible for transmitting sensory input from the body to the brain and for conducting motor impulses from the brain to the body muscles and organs.

**spinal nerves** 31 pairs of nerves that originate along the spinal cord from anterior and posterior nerve roots.

**spinous process** prominence at the posterior part of a vertebra.
spotter the person behind the left rear side of the ambulance who assists the operator in backing up the vehicle.

staff functions officers who perform supervisory roles in the IMS, rather than actually performing a task.

staging locations where ambulances, personnel, and equipment are kept in reserve for use at an incident.

staging officer supervises the staging area and guards against premature commitment of resources and freelancing by personnel; reports to the branch director.

standard of care the degree of care, skill, and judgment expected under like or similar circumstances by a similarly trained, reasonable paramedic in the same community.

standing orders preauthorized treatment procedures; a type of treatment protocol.

Starling’s law of the heart law of physiology stating that the more the myocardium is stretched, up to a certain limit, the more forceful the subsequent contraction will be.

START acronym for the most widely used disaster triage system; stands for simple triage and rapid transport.

sterile free of all forms of life.

sterilizing use of a chemical or physical method, such as pressurized steam, to kill all microorganisms on an object.

stethoscope tool used to auscultate most sounds.

stock solution standard concentration of routinely used medications.

strainer a partial obstruction that filters, or strains, the water, such as downed trees or wire mesh, causing an unequal force on the two sides.

stress response changes within the body initiated by a stressor.

stress a hardship or strain; a physical or psychological arousal to stimulus.

stressor a stimulus that causes stress.

stridor predominantly inspiratory wheeze associated with laryngeal obstruction.

stroke volume the amount of blood ejected by the heart in one cardiac contraction.

subcutaneous emphysema crackling sensation caused by air just underneath the skin.

subcutaneous tissue body layer beneath the dermis; the layer of loose connective tissue between the skin and muscle.

sublingual beneath the tongue.

sudoriferous glands glands within the dermis that secrete sweat.

suppository medication packaged in a soft, pliable form, for insertion into the rectum.

surfactant substance that decreases surface tension.
**sutures** pseudo-joints that join the various bones of the skull to form the cranium.

**sympathetic nervous system** division of the autonomic nervous system that prepares the body for stressful situations. Sympathetic nervous system actions include increased heart rate and dilation of the bronchioles and pupils. Its actions are mediated by the neurotransmitters epinephrine and norepinephrine.

**sympatholytic** drug or other substance that blocks the actions of the sympathetic nervous system. Also called *antiadrenergic*.

**sympathomimetic** drug or other substance that causes effects like those of the sympathetic nervous system. Also called *adrenergic*.

**synarthrosis** joint that does not permit movement.

**syncytium** group of cardiac muscle cells that physiologically function as a unit.

**synergism** a standard pharmacological principle in which two substances or drugs work together to produce an effect that neither of them can produce on its own.

**synovial fluid** substance that lubricates synovial joints.

**synovial joint** type of joint that permits the greatest degree of independent motion.

**syringe** plastic tube with which liquid medications can be drawn up, stored, and injected.

**system status management (SSM)** a computerized personnel and ambulance deployment system.

**systemic effects** effects that occur throughout the body after exposure to a toxic substance.

**systemic** throughout the body.

**systole** the period of the cardiac cycle when the myocardium is contracting.

**systolic blood pressure** force of blood against arteries when ventricles contract.

**T lymphocytes** white blood cells that do not produce antibodies but, instead, attacks antigens directly.

**tachycardia** a pulse rate faster than 100.

**tachypnea** rapid respiration.

**tactical emergency medical services (TEMS)** a specially trained unit that provides on-site medical support to law enforcement.

**teachable moment** the time shortly after an injury when patients and observers may be more receptive to teaching about how similar injuries may be prevented in the future.

**tenderness** pain that is elicited through palpation.

**teratogenic drug** medication that may deform or kill the fetus.

**termination of action** time from when the drug’s level drops below its minimum effective concentration until it is eliminated from the body.
**tertiary prevention** rehabilitation after an injury or illness that helps prevent further problems from occurring.

testes primary male reproductive organs that produce hormones responsible for sexual maturation cells; singular *testis*.

thalamus switching station between the pons and the cerebrum in the brain.

**therapeutic index** ratio of a drug’s lethal dose for 50 percent of the population to its effective dose for 50 percent of the population.

**thrill** vibration or humming felt when palpating the pulse.

**thrombocyte** blood platelet.

**thrombocytosis** an abnormal increase in the number of platelets.

**thrombolytic** drug that acts directly on thrombi to break them down.

**thrombophlebitis** inflammation of the vein.

**thrombosis** clot formation, which is extremely dangerous when it occurs in coronary arteries or cerebral vasculature.

**thrombus** blood clot.

**tidal volume** average volume of gas inhaled or exhaled in one respiratory cycle.

**tiered response system** system that allows multiple vehicles to arrive at an EMS call at different times, often providing different levels of care or transport.

**tinnitus** the sensation of ringing in the ears.

**tissue** a group of cells that perform a similar function.

**tone** state of slight contraction of muscles that gives them firmness and keeps them ready to contract.

**tonicity** solute concentration or osmotic pressure relative to the blood plasma or body cells.

**topical medications** material applied to and absorbed through the skin or mucous membranes.

**tort** a civil wrong committed by one individual against another.

**total body water (TBW)** the total amount of water in the body at a given time.

**total lung capacity** maximum lung capacity.

**touch pad** computer on which you enter data by touching areas of the display screen.

**trachea** 10- to 12-cm-long tube that connects the larynx to the mainstem bronchi.

**transdermal** absorbed through the skin.

**transport supervisor** coordinates operations with the staging officer and the transport supervisor; gets patients into the ambulances and routed to the hospitals.
transverse process bony outgrowth of the vertebral pedicle that serves as a site for muscle attachment and articulation with the ribs.

trauma a physical injury or wound caused by external force or violence.

trauma centre medical facility that has the capability of caring for the acutely injured patient. Trauma centres must meet strict criteria to use this designation.

trauma intervention programs (TIP) mental health workers and citizen volunteers specially trained to provide assistance to anyone emotionally traumatized by a crisis event.

treatment group supervisor controls all actions in the treatment group/sector.

treatment unit leaders EMS personnel who manage the various treatment units and who report to the treatment group supervisor.

triage tags tags containing vital information, affixed to your patient during a multi-patient incident.

triage a method of sorting patients by the severity of their injuries.

trocar a sharp, pointed instrument.

trunking communication system that pools all frequencies and routes transmissions to the next available frequency.

turgor normal tension in a cell; the resistance of the skin to deformation (in a normally hydrated person, the skin, when pinched, will quickly return to its normal formation. In a dehydrated person, the return to normal formation will be slower.)

turnover the continual synthesis and breakdown of body substances that results in the dynamic steady state.

ultrahigh frequency radio frequency band from 300 to 3000 megahertz.

UN number a four-digit number specific to a given chemical; some UN numbers are assigned to a group of related chemicals, but with different characteristics, such as the UN 1203 designation for diesel fuel, gasohol, gasoline, motor fuels, motor spirits, and petrol. (The letters UN stand for “United Nations.” Sometimes the letters NA for “North America” appear with or instead of the UN designation.)

unified command process in which managers from different jurisdictions—law enforcement, fire, EMS—coordinate their activities and share responsibility for command.

unit predetermined amount of medication or fluid.

up-regulation a drug causes the formation of more receptors than normal.

ureter a duct that carries urine from kidney to urinary bladder.

urethra the duct that carries urine from the urinary bladder out of the body; in men, it also carries reproductive fluid (semen) to the outside of the body.
**urinary bladder** the muscular organ that stores urine before its elimination from the body.

**uterus** hollow organ in the center of the abdomen that provides the site for fetal development.

**vaccine** solution containing a modified pathogen that does not actually cause disease but still stimulates the development of antibodies specific to it.

**vacutainer** device that holds blood tubes.

**vagina** canal that connects the external female genitalia to the uterus.

**vallecula** depression between the epiglottis and the base of the tongue.

**vas deferens** the duct that carries sperm cells to the urethra for ejaculation.

**venous access device** surgically implanted port that permits repeated access to central venous circulation.

**venous constricting band** flat rubber band used to impede venous return and make veins easier to see.

**ventilation** the mechanical process that moves air in and out of the lungs.

**vertebre** the 33 bones making up the vertebral column; singular *vertebra*.

**vertebral body** short column of bone that forms the weight-bearing portion of a vertebra.

**very high frequency** radio frequency band from 30 to 300 megahertz.

**vial** plastic or glass container with a self-sealing rubber top.

**virus** an organism much smaller than a bacterium, visible only under an electron microscope. Viruses invade and live outside the cells of the organisms they infect.

**visual acuity wall chart/card** wall chart or handheld card with lines of letters used to test vision.

**vital statistics** height and weight.

**vitreous humor** clear watery fluid filling the posterior chamber of the eye. It is responsible for giving the eye its spherical shape.

**volume on hand** the available amount solution containing a medication.

**warm zone** location at a hazmat incident adjacent to the hot zone; area where a decontamination corridor is established; also called the yellow zone or the contamination reduction zone.

**warning placard** diamond-shaped graphic placed on vehicles to indicate hazard classification.

**weapons of mass destruction (WMD)** variety of chemical, biological, nuclear, or other devices used by terrorists to strike at government or high-profile targets; designed to create a maximum number of casualties.
wheezes continuous, high-pitched musical sounds similar to a whistle.

whispered pectoriloquy abnormal clarity of patient’s transmitted whispers.

white matter material that surrounds grey matter in the spinal cord; made up largely of axons.

xiphisternal joint union between xiphoid process and body of the sternum.

years of productive life age at death subtracted from 65.

yellow bone marrow tissue that stores fat in semi-liquid form within the internal cavities of a bone.

zygoma the cheekbone.