

## SPINAL BACKBOARDING PROCEDURE— DEEP WATER *continued*

- 5** Once the backboard is in place, the primary rescuer then lowers the victim's arms, moves behind the victim's head and places a rescue tube under the head of the backboard. The primary rescuer balances the board on the rescue tube with his or her forearms and stabilizes the victim's head by placing his or her hands along each side of the victim's head. The assisting rescuer moves to the foot of the board and removes the rescue tube under the victim's knees by sliding the rescue tube toward him or herself.



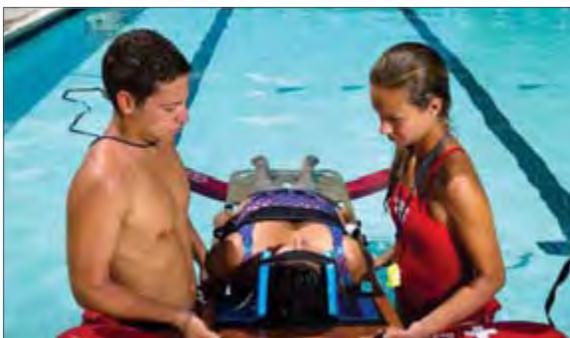
- 6** An assisting lifeguard secures the victim on the backboard by placing straps at least across the victim's chest, hips and thighs. After all the straps have been checked and properly secured, the rescuers secure the victim's head using a head immobilizer and a strap across the victim's forehead.





## SPINAL INJURY—REMOVAL FROM THE WATER ON A BACKBOARD

- 1 Once the victim is properly secured to the backboard, position the backboard with the head-end by the side of the pool and the foot-end straight out into the water.
- 2 With one lifeguard at each side, lift the head of the backboard slightly and place it on the edge. Use one or two rescue tubes if needed to support the foot end of the board.



- 3 One lifeguard gets out of the pool while the other maintains control of the backboard. Once out of the water, the lifeguard on land grasps the head of the backboard while the other gets out of the water.



- 4 Together the lifeguards stand and step backward, pulling the backboard and sliding it up over the edge and out of and away from the water. If available, an assisting lifeguard remains in the water to help push the board.



- 5 If available, additional lifeguards help guide and remove the backboard out of the water and onto land, then begin to assess the victim's condition and providing the appropriate care.

## SPINAL INJURY—REMOVAL FROM THE WATER ON A BACKBOARD *continued*

### Notes:

- **Use proper lifting techniques to prevent injury to yourself:**
  - *Keep the back straight.*
  - *Bend at the knee.*
  - *Move in a controlled way without jerking or tugging.*
  - *Keep the board as level and low to the deck or pier as possible, consistent with proper lifting techniques.*
- **Additional lifeguards can assist by:**
  - *Supporting the primary rescuer at the head of the backboard.*
  - *Placing and securing the straps along the chest, hips and thighs.*
  - *Placing the head immobilizer and securing the strap across the forehead.*
  - *Removing the backboard from the water.*
  - *Begin assessing the victim's condition and providing the appropriate care.*



## SPINAL BACKBOARDING PROCEDURE AND REMOVAL FROM WATER—**SPEED SLIDE**

- 1** The primary rescuer performs in-line stabilization by placing his or her hands on both sides of the victim's head while the victim is on the slide.



- 2** Other lifeguards carefully lift the victim and slide the backboard into place from the feet to the head.



- 3 Lifeguards lower the victim onto the backboard.



- 4 Lifeguards secure the victim to the backboard and immobilize the head.

- 5 Lifeguards lift the backboard and victim out of the slide.



## CARING FOR A STANDING VICTIM WHO HAS A SUSPECTED HEAD, NECK OR SPINAL INJURY ON LAND

**Note:** Have another person call EMS personnel for a head, neck or spinal injury while you maintain in-line stabilization of the head, neck and spine.

- 1 Lifeguard 1 approaches the victim from the front and performs manual stabilization of the victim's head and neck by placing one hand on each side of the head.

- 2 Lifeguard 2 retrieves a backboard and places it against the victim's back, being careful not to disturb stabilization of the victim's head. Lifeguard 3 helps to position the backboard so that it is centered behind the victim.



## CARING FOR A STANDING VICTIM WHO HAS A SUSPECTED HEAD, NECK OR SPINAL INJURY ON LAND *continued*

- 3** While Lifeguard 3 holds the backboard, Lifeguard 2 secures the victim to the backboard by placing and securing straps across the victim's chest, under the armpits, and across the hips and thighs. Lifeguard 2 rechecks the straps to be sure that they are secure, then secures the victim's head to the backboard using a head immobilizer and strap across the victim's forehead.



- 4** The lifeguards at the victim's side each place their inside hands underneath the victim's armpit, in between the victim's arm and torso, and grasp the backboard at a handhold at the victim's armpit level or higher.



- 5** When the victim is secured to the board, the other lifeguard grasps the top. Lifeguard 1 informs the victim that they will lower him or her to the ground. When ready, signal to the other two lifeguards to begin. While lowering the victim, the lifeguards at the victim's sides should walk forward and bend at the knees to avoid back injury.



**If the position of the head immobilizer cannot be adjusted to the height of a victim, consider one of the following options:**

- Place the blocks on either side of the victim's head flush against the backboard. Place an additional strap across the victim's forehead.
- If this not possible, have another lifeguard provide manual stabilization from the head of the board. At the beginning, this lifeguard stands behind the board and reaches around to provide stabilization. As the board is lowered, this lifeguard steps back, while maintaining stabilization, until the board is on the ground.
- If the victim is taller than the backboard, place an object such as a folded blanket or towel under the foot of the backboard so that the victim's head does not extend beyond the end of the board.





## MANUAL STABILIZATION FOR A HEAD, NECK OR SPINAL INJURY ON LAND

**Note:** Have someone call EMS personnel for a head, neck or spinal injury while you minimize movement of the head, neck and spine.

- 1 Minimize movement by placing your hands on both sides of the victim's head.



- 2 Support the head in the position found.
  - Do not align the head and neck with the spine if the head is sharply turned to one side, there is pain on movement or if you feel any resistance when attempting to align the head and neck with the spine.

- 3 Maintain an open airway.

- 4 Keep the victim from getting chilled or overheated.

**Note:** Gently position the victim's head in line with the body if you cannot maintain an open airway.

## GLOSSARY

**Abandonment** – Ending care of an ill or injured person without that person's consent or without ensuring that someone with equal or greater training will continue that care.

**Abdomen** – The middle part of the trunk (torso) containing the stomach, liver and other organs.

**Abrasion** – A wound in which skin is rubbed or scraped away.

**Active drowning victim** – A person exhibiting universal behavior that includes struggling at the surface in a vertical position and being unable to move forward or tread water.

**Agonal gasps** – Isolated or infrequent gasping in the absence of other breathing in an unconscious person.

**AIDS** – When an infected person has a significant drop in a certain type of white blood cells or shows signs of having certain infections or cancers caused by an HIV infection.

**Airway adjunct** – A mechanical device to keep a victim's airway clear.

**Anaphylactic shock** – A severe allergic reaction in which air passages may swell and restrict breathing; a form of shock. See also anaphylaxis.

**Anaphylaxis** – A severe allergic reaction; a form of shock. See also anaphylactic shock.

**Anatomic splint** – A part of the body used to immobilize an injured body part.

**Anatomical airway obstruction** – Complete or partial blockage of the airway by the tongue or swollen tissues of the mouth or throat.

**Antihistamine** – Drug used to treat the signals of allergic reactions.

**Aquatic environment** – An environment in which recreational water activities are played or performed.

**Aquatic safety team** – A network of people in the facility and emergency medical services system who can plan for, respond to and assist in an emergency at an aquatic facility.

**Area of responsibility** – The zone or area in which a lifeguard conducts surveillance.

**Ashen** – A grayish color; darker skin often looks ashen instead of pale.

**Assess** – To examine and evaluate a situation carefully.

**Asthma** – A condition that narrows the air passages and makes breathing difficult.

**Asystole** – A condition in which the heart has stopped generating electrical activity.

**Atrioventricular node (AV)** – The point along the heart's electrical pathway midway between the atria and ventricles that sends electrical impulses to the ventricles.

**Automated external defibrillator (AED)** – An automatic device used to recognize a heart rhythm that requires an electric shock and either delivers the shock or prompts the rescuer to deliver it.

**Avulsion** – A wound in which soft tissue is partially or completely torn away.

**Backboard** – A standard piece of rescue equipment at all aquatic facilities used to maintain in-line stabilization while securing and transporting a victim with a suspected head, neck or back injury.

**Bag-valve-mask (BVM) resuscitator** – A handheld breathing device used on a victim in respiratory distress or respiratory arrest. It consists of a self-inflating bag, a one-way valve and a mask; can be used with or without supplemental oxygen.

**Bandage** – Material used to wrap or cover an injured body part; often used to hold a dressing in place.

**Blind spots** – Areas within a lifeguard's area of responsibility that cannot be seen or are difficult to see.

**Bloodborne pathogens** – Bacteria and viruses present in blood and body fluids that can cause disease in humans.

**Bloodborne pathogens standard** – A federal regulation designed to protect employees from exposure to bodily fluids that might contain a disease-causing agent.

**Body substance isolation (BSI) precautions** – An approach to infection control that considers all body fluids and substances to be infectious.

**Bone** – A dense, hard tissue that forms the skeleton.

**Buddy board** – A board with identification tags used to keep track of swimmers and reinforce the importance of the buddy system.

**Bulkhead** – A moveable wall placed in a swimming pool to separate activities or water of different depths.

**Buoy** – A float in the water anchored to the bottom.

**Buoyancy** – The tendency of a body to float or to rise when submerged in a fluid.

**Buoyant** – Tending to float, capable of keeping an object afloat.

**Bystanders** – People at the scene of an emergency who do not have a duty to provide care.

**Carbon dioxide** – A colorless, odorless gas; a waste product of respiration.

**Carbon monoxide** – A clear, odorless, poisonous gas produced when carbon or other fuel is burned, as in gasoline engines.

**Cardiac arrest** – A condition in which the heart has stopped or beats too ineffectively to generate a pulse.

**Cartilage** – An elastic tissue in the body; in the joints, it acts as a shock absorber when a person is walking, running or jumping.

**Catch pool** – A small pool at the bottom of a slide where patrons enter water deep enough to cushion their landing.

**Chain of command** – The structure of employee and management positions in a facility or organization.

**Chemical hazard** – A harmful or potentially harmful substance in or around a facility.

**Chest** – The upper part of the trunk (torso), containing the heart, major blood vessels and lungs.

**Chronic** – Persistent over a long period of time.

**Closed wound** – An injury that does not break the skin and in which soft tissue damage occurs beneath the skin.

**Cold-related emergencies** – Emergencies, including hypothermia and frostbite, caused by overexposure to cold.

**Concussion** – A temporary impairment of brain function.

**Confidentiality** – Protecting a victim's privacy by not revealing any personal information learned about a victim except to law enforcement personnel or emergency medical services personnel caring for the victim.

**Consent** – Permission to provide care given by an ill or injured person to a rescuer.

**Convulsions** – Sudden, uncontrolled muscular contractions.

**CPR** – A technique that combines chest compressions and rescue breaths for a victim whose heart and breathing have stopped.

**Critical incident** – Any situation that causes a person to experience unusually strong emotional reactions that interfere with his or her ability to function during and after a highly stressful incident.

**Critical incident stress** – The stress a person experiences during or after a highly stressful emergency.

**Cross bearing** – A technique for determining the place where a submerged victim was last seen, performed by two persons some distance apart, each pointing to the place such that the position is where the lines of their pointing cross.

**Current** – Fast-moving water.

**Cyanosis** – A blue discoloration of the skin around the mouth and fingertips resulting from a lack of oxygen in the blood.

**Daily log** – A written journal kept by lifeguards, the head lifeguard and management containing a daily account of safety precautions taken and significant events.

**Deep-water line search** – An effective pattern for searching in water that is greater than chest deep.

**Defibrillation** – An electrical shock that disrupts the electrical activity of the heart long enough to allow the heart to spontaneously develop an effective rhythm on its own.

**Diabetes** – A condition in which the body does not produce enough insulin or does not use insulin effectively enough to regulate the amount of sugar (glucose) in the bloodstream.

**Diabetic** – A person with the condition called diabetes mellitus, which causes a body to produce insufficient amounts of the hormone insulin.

**Diabetic emergency** – A situation in which a person becomes ill because of an imbalance of sugar (glucose) and insulin in the bloodstream.

**Direct contact transmission** – Occurs when infected blood or body fluids from one person enter another person's body at a correct entry site.

**Disability** – The loss, absence or impairment of sensory, motor or mental function.

**Dislocation** – The movement of a bone away from its normal position at a joint.

**Disoriented** – Being in a state of confusion; not knowing place, identity or what happened.

**Dispatch** – The method for informing patrons when it is safe to proceed on a ride.

**Distressed swimmer** – A person capable of staying afloat, but likely to need assistance to get to safety. If not rescued, the person becomes an active drowning victim.

**Dressing** – A pad placed on a wound to control bleeding and prevent infection.

**Drop-off slide** – A slide that ends with a drop of several feet into a catch pool.

**Droplet transmission** – Transmission of disease through the inhalation of droplets from an infected person's cough or sneeze.

**Drowning** – Death by suffocation in water.

**Drug** – Any substance other than food intended to affect the functions of the body.

**Duty to act** – A legal responsibility of certain people to provide a reasonable standard of emergency care; may be required by case law, statute or job description.

**Electrocardiogram (ECG)** – A graphic record produced by a device that records the electrical activity of the heart from the chest.

**Embedded object** – An object that remains embedded in an open wound.

**Emergency** – A sudden, unexpected incident demanding immediate action.

**Emergency action plan (EAP)** – A written plan detailing how facility staff are to respond in a specific type of emergency.

**Emergency back-up coverage** – Coverage by lifeguards who remain out of the water during an emergency situation and supervise a larger area when another lifeguard must enter the water for a rescue.

**Emergency medical services (EMS) personnel** – Trained and equipped community-based personnel dispatched through a local emergency number to provide emergency care for injured or ill people.

**Emergency medical technician (EMT)** – A person who has successfully completed a state-approved emergency medical technician training program; paramedics are the highest level of EMTs.

**Emergency stop button** – A button or switch used to immediately turn off the waves or water flow in a wave pool, water slide or other water attraction in the event of an emergency.

**Emphysema** – A disease in which the lungs lose their ability to exchange carbon dioxide and oxygen effectively.

**Engineering controls** – Safeguards intended to isolate or remove a hazard from the workplace.

**Epilepsy** – A chronic condition characterized by seizures that vary in type and duration; can usually be controlled by medication.

**Epinephrine** – A form of adrenaline medication prescribed to treat the symptoms of severe allergic reactions.

**Exhaustion** – The state of being extremely tired or weak.

**Facility surveillance** – Checking the facility to help prevent injuries caused by avoidable hazards in the facility's environment.

**Fainting** – A temporary loss of consciousness.

**Fibrillation** – A quivering of the heart's ventricles.

**Forearm** – The upper extremity from the elbow to the wrist.

**Fracture** – A chip, crack or complete break in bone tissue.

**Free-fall slide** – A type of speed slide with a nearly vertical drop, giving riders the sensation of falling.

**Frostbite** – The freezing of body parts exposed to the cold.

**Gasp reflex** – A sudden involuntary attempt to "catch one's breath," which may cause the victim to inhale water into the lungs if the face is underwater.

**Heat cramps** – Painful spasms of skeletal muscles after exercise or work in warm or moderate temperatures; usually involve the calf and abdominal muscles.

**Heat exhaustion** – The early stage and most common form of heat-related illness; often results from strenuous work or exercise in a hot environment.

**Heat stroke** – A life-threatening condition that develops when the body's cooling mechanisms are overwhelmed and body systems begin to fail.

**Heat-related illnesses** – Illnesses, including heat exhaustion, heat cramps and heat stroke, caused by overexposure to heat.

**Hemostatic agents** – A substance that stops bleeding by shortening the amount of time it takes for blood to clot. They usually contain chemicals that remove moisture from the blood.

**Hepatitis B** – A liver infection caused by the hepatitis B virus; may be severe or even fatal and can be in the body up to 6 months before symptoms appear.

**Hepatitis C** – A liver disease caused by the hepatitis C virus; it is the most common chronic bloodborne infection in the United States.

**HIV** – A virus that destroys the body's ability to fight infection. A result of HIV infection is referred to as AIDS.

**Hull** – The main body of a boat.

**Hydraulic** – Strong force created by water flowing downward over an obstruction and then reversing its flow.

**Hyperglycemia** – Someone experiencing symptoms of high blood sugar.

**Hyperventilation** – A dangerous technique some swimmers use to stay under water longer by taking several deep breaths followed by forceful exhalations, then inhaling deeply before swimming under water.

**Hypoglycemia** – Someone experiencing symptoms of low blood sugar.

**Hypothermia** – A life-threatening condition in which cold or cool temperatures cause the body to lose heat faster than it can produce it.

**Hypoxia** – A condition in which insufficient oxygen reaches the cells, resulting in cyanosis and changes in consciousness and in breathing and heart rates.

**Immobilize** – To use a splint or other method to keep an injured body part from moving.

**Implied consent** – Legal concept that assumes a person would consent to receive emergency care if he or she were physically able to do so.

**Incident** – An occurrence or event that interrupts normal procedure or brings about a crisis.

**Incident report** – A report filed by a lifeguard or other facility staff who responded to an emergency or other incident.

**Indirect contact transmission** – Occurs when a person touches objects that have the blood or body fluid of an infected person, and that infected blood or body fluid enters the body through a correct entry site.

**Inflatables** – Plastic toys or equipment that are filled with air to function as recommended.

**Inhaled poison** – A poison that a person breathes into the lungs.

**Injury** – The physical harm from an external force on the body.

**In-line stabilization** – A technique used to minimize movement of a victim's head and neck while providing care.

**In-service training** – Regularly scheduled staff meetings and practice sessions that cover lifeguarding information and skills.

**Instinctive drowning response** – A universal set of behaviors exhibited by an active drowning victim that include struggling to keep the face above water, extending arms to the side and pressing down for support, not making any forward progress in the water and staying at the surface for only 20 to 60 seconds.

**Intervals** – A series of repeat swims of the same distance and time interval, each done at the same high level of effort.

**Jaundice** – Yellowing of the skin and eyes.

**Joint** – A structure where two or more bones are joined.

**Laceration** – A cut.

**Laryngospasm** – A spasm of the vocal cords that closes the airway.

**Life jacket** – A type of personal floatation device (PFD) approved by the United States Coast Guard for use during activities in, on or around water.

**Lifeguard** – A person trained in lifeguarding, CPR and first aid skills who ensures the safety of people at an aquatic facility by preventing and responding to emergencies.

**Lifeguard competitions** – Events and contests designed to evaluate the skills and knowledge of individual lifeguards and lifeguard teams.

**Lifeguard team** – A group of two or more lifeguards on duty at a facility at the same time.

**Ligaments** – A tough, fibrous connective tissue that holds bones together at a joint.

**Line-and-reel** – A heavy piece of rope or cord attached to rescue equipment that may be used to tow the lifeguard and the victim to safety.

**Material Safety Data Sheet (MSDS)** – A form that provides information about a hazardous substance.

**Mechanical obstruction** – Complete or partial blockage of the airway by a foreign object, such as a piece of food or a small toy, or by fluids, such as vomit or blood.

**Muscle** – Tissue in the body that lengthens and shortens to create movement.

**Myocardial infarction** – A heart attack.

**Nasal cannula** – A device used to deliver oxygen to a breathing person; used mostly for victims with minor breathing problems.

**Negligence** – The failure to follow the standard of care or to act, thereby causing injury or further harm to another.

**Nonfatal drowning** – To survive, at least temporarily, following submersion in water (drowning).

**Non-rebreather mask** – A mask used to deliver high concentrations of oxygen to breathing victims.

**Occupational Safety and Health Administration (OSHA)** – A government agency that helps protect the health and safety of employees in the workplace.

**Open wound** – An injury to soft tissue resulting in a break in the skin, such as a cut.

**Opportunistic infections** – Infections that strike people whose immune systems are weakened by HIV or other infections.

**Oxygen** – A tasteless, colorless, odorless gas necessary to sustain life.

**Oxygen delivery device** – Equipment used to supply oxygen to a victim of a breathing emergency.

**Paralysis** – A loss of muscle control; a permanent loss of feeling and movement.

**Partial thickness burn** – A burn that involves both layers of skin. Also called a second-degree burn.

**Passive drowning victim** – An unconscious victim face-down, submerged or near the surface.

**Pathogen** – A disease-causing agent. Also called a microorganism or germ.

**Patron surveillance** – Maintaining a close watch over the people using an aquatic facility.

**Peripheral vision** – What one sees at the edges of one's field of vision.

**Personal flotation device (PFD)** – Coast Guard-approved life jacket, buoyancy vest, wearable flotation aid, throwable device or other special-use flotation device.

**Personal water craft** – A motorized vehicle designed for one or two riders that skims over the surface of the water.

**Pier** – A wooden walkway or platform built over the water supported by pillars that is used for boats to dock, fishing or other water activities.

**Poison** – Any substance that causes injury, illness or death when introduced into the body.

**Poison Control Center (PCC)** – A specialized kind of health center that provides information in cases of poisoning or suspected poisoning emergencies.

**Policies and procedures manual** – A manual that provides detailed information about the daily and emergency operations of a facility.

**Preventive lifeguarding** – The methods that lifeguards use to prevent drowning and other injuries by identifying dangerous conditions or behaviors and then taking steps to minimize or eliminate them.

**Primary responsibility** – A lifeguard's main responsibility, which is to prevent drowning and other injuries from occurring at an aquatic facility.

**Professional rescuers** – Paid or volunteer personnel, including lifeguards, who have a legal duty to act in an emergency.

**Public address system** – An electronic amplification system, used at an aquatic facility so that announcements can be easily heard by patrons.

**Puncture** – An open wound created when the skin is pierced by a pointed object.

**Rapids ride** – A rough-water attraction that simulates white-water rafting.

**Reaching assist** – A method of helping someone out of the water by reaching to that person with your hand, leg or an object.

**Reaching pole** – An aluminum or fiberglass pole, usually 10- to 15-feet long, used for rescues.

**Refusal of care** – The declining of care by a victim; the victim has the right to refuse the care of anyone who responds to an emergency.

**Rescue board** – A plastic or fiberglass board shaped like a surf board that is used by lifeguards to paddle out and make a rescue.

**Rescue tube** – A 45- to 54-inch vinyl, foam-filled tube with an attached tow line and shoulder strap that lifeguards use to make rescues.

**Respiratory arrest** – A condition in which breathing has stopped.

**Respiratory distress** – A condition in which breathing is difficult.

**Respiratory failure** – When the respiratory system is beginning to shut down, which in turn can lead to respiratory arrest.

**Resuscitation mask** – A pliable, dome-shaped device that fits over a person's mouth and nose; used to assist with rescue breathing.

**RID factor** – Three elements—recognition, intrusion and distraction—related to drownings at guarded facilities.

**Ring buoy** – A buoyant ring, usually 20 to 30 inches in diameter; with an attached line, allows a rescuer to pull a victim to safety without entering the water.

**Risk management** – Identifying and eliminating or minimizing dangerous conditions that can cause injuries and financial loss.

**Roving station** – When a roving lifeguard is assigned a specific zone, which also is covered by another lifeguard in an elevated station.

**Rules** – Guidelines for conduct or action that help keep patrons safe at pools and other swimming areas.

**Runout** – The area at the end of a slide where water slows the speed of the riders.

**Safety check** – An inspection of the facility to find and eliminate or minimize hazards.

**Scanning** – A visual technique used by lifeguards to properly observe and monitor patrons participating in water activities.

**Secondary responsibilities** – Other duties a lifeguard must perform, such as testing the pool water chemistry, assisting patrons, performing maintenance, completing records and reports, or performing opening duties, closing duties or facility safety checks. Secondary responsibilities should never interfere with a lifeguard's primary responsibility.

**Seiche** – A French word meaning to sway back and forth. It is a standing wave that oscillates in a lake because of seismic or atmospheric disturbances creating huge fluctuations of water levels in just moments. Water sloshes between opposing shores within the lake basin, decreasing in height with each rocking back and forth until it reaches equilibrium.

**Seizure** – A disorder in the brain's electrical activity, marked by loss of consciousness and often by convulsions.

**Shepherd's crook** – A reaching pole with a large hook on the end. See also reaching pole.

**Shock** – A life-threatening condition in which the circulatory system fails to deliver blood to all parts of the body, causing body organs to fail.

**Sighting** – A technique for noting where a submerged victim was last seen, performed by imagining a line to the opposite shore and estimating the victim's position along that line. See also cross bearing.

**Sink** – To fall, drop or descend gradually to a lower level.

**Soft tissue** – Body structures that include the layers of skin, fat and muscles.

**Spa** – A small pool or tub in which people sit in rapidly circulating hot water.

**Spasm** – An involuntary and abnormal muscle contraction.

**Speed slide** – A steep water slide on which patrons may reach speeds in excess of 35 mph.

**Spinal cord** – A bundle of nerves extending from the base of the skull to the lower back and protected by the spinal column.

**Splint** – A device used to immobilize body parts; applying such a device.

**Spokesperson** – The person at the facility designated to speak on behalf of others.

**Sprain** – The stretching and tearing of ligaments and other tissue structures at a joint.

**Standard of care** – The minimal standard and quality of care expected of an emergency care provider.

**Standard precautions** – Safety measures, such as body substance isolation, taken to prevent occupational-risk exposure to blood or other potentially infectious materials, such as body fluids containing visible blood.

**Starting blocks** – Platforms from which competitive swimmers dive to start a race.

**Sterile** – Free from germs.

**Stern** – The back of a boat.

**Stoma** – An opening in the front of the neck through which a person whose larynx has been removed breathes.

**Strain** – The stretching and tearing of muscles or tendons.

**Stress** – A physiological or psychological response to real or imagined influences that alter an existing state of physical, mental or emotional balance.

**Stroke** – A disruption of blood flow to a part of the brain, causing permanent damage.

**Submerged** – Underwater, covered with water.

**Suctioning** – The process of removing foreign matter from the upper airway by means of manual device.

**Sun protection factor (SPF)** – The ability of a substance to prevent the sun's harmful rays from being absorbed into the skin; a concentration of sunscreen.

**Sunscreen** – A cream, lotion or spray used to protect the skin from harmful rays of the sun.

**Superficial burn** – A burn involving only the outer layer of skin, the epidermis, characterized by dry, red or tender skin. Also referred to as a first-degree burn.

**Surveillance** – A close watch kept over someone or something, such as patrons or a facility.

**Thermocline** – A layer of water between the warmer, surface zone and the colder, deep-water zone in a body of water in which the temperature decreases rapidly with depth.

**Throwable device** – Any object that can be thrown to a drowning victim to aid him or her in floating.

**Throwing assist** – A method of helping someone out of the water by throwing a floating object with a line attached.

**Tornado warning** – A warning issued by the National Weather Service notifying that a tornado has been sighted.

**Tornado watch** – A warning issued by the National Weather Service notifying that tornadoes are possible.

**Total coverage** – When only one lifeguard is conducting patron surveillance for an entire pool while on duty.

**Universal precautions** – Practices required by the federal Occupational Safety and Health Administration to control and protect employees from exposure to blood and other potentially infectious materials.

**Universal sign of choking** – When a conscious person is clutching the throat due to an airway blockage.

**Vector-borne transmission** – Transmission of a disease by an animal or insect bite through exposure to blood or other body fluids.

**Ventricles** – The two lower chambers of the heart.

**Ventricular fibrillation (V-fib)** – An abnormal heart rhythm characterized by disorganized electrical activity, which results in the quivering of the ventricles.

**Ventricular tachycardia (V-tach)** – An abnormal heart rhythm characterized by rapid contractions of the ventricles.

**Waterfront** – Open water areas, such as lakes, rivers, ponds and oceans.

**Waterpark** – An aquatic theme park with attractions such as wave pools, speed slides or winding rivers.

**Wheezing** – The hoarse whistling sound made when inhaling and/or exhaling.

**Work practice controls** – Employee and employer behaviors that reduce the likelihood of exposure to a hazard at the job site.

**Wound** – An injury to the soft tissues.

**Xiphoid process** – The lowest point of the breastbone.

**Zone coverage** – Coverage in which the swimming area is divided into separate zones, with one zone for each lifeguard station.

**Zone of surveillance responsibility** – Also referred to as zones, these are the specific areas of the water, deck, pier or shoreline that are a lifeguard's responsibility to scan from a lifeguard station.

---

## REFERENCES

- 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations, *Circulation*.  
[http://circ.ahajournals.org/content/122/16\\_suppl\\_2/S250.short](http://circ.ahajournals.org/content/122/16_suppl_2/S250.short). Accessed August 2011.
- American Alliance for Health, Physical Education, Recreation and Dance. *Safety Aquatics*. Sports Safety Series, Monograph #5. American Alliance for Health, Physical Education, Recreation and Dance, 1977.
- American Heart Association and the American National Red Cross, 2010 Guidelines for First Aid, *Circulation*, [http://circ.ahajournals.org/content/122/18\\_suppl\\_3/S934.full.pdf](http://circ.ahajournals.org/content/122/18_suppl_3/S934.full.pdf). Accessed August 2011.
- The American National Red Cross. *Adapted Aquatics: Swimming for Persons With Physical or Mental Impairments*. Washington, D.C.: The American National Red Cross, 1977.
- . *Basic Water Rescue*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2009.
- . *CPR/AED for the Professional Rescuer and Health Care Providers*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2011.
- . *Emergency Medical Response*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2011.
- . *First Aid/CPR/AED*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2011.
- . *First Aid—Responding to Emergencies*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2006.
- . *Lifeguarding Manual*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2006.
- . *Lifeguarding Today*. Boston: StayWell, 1994.
- . *Safety Training for Swim Coaches*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2009.
- . *Swimming and Water Safety*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2009.
- American Red Cross Scientific Advisory Council (SAC). *Advisory Statement on Aspirin Administration*, 2001.
- . *Advisory Statement on Asthma Assistance*, 2003.
- . *Advisory Statement on Epinephrine Administration*, 2001.
- . *Advisory Statement on Cervical Collar Application in Water Rescue*, 2000.
- . *Advisory Statement on Hand Hygiene for First Aid*, 2006.
- . *Advisory Statement on Hyperthermia*, 2009.
- . *Advisory Statement on Lightning Safety for Pools*, 2009.
- . *Advisory Statement on Subdiaphragmatic Thrusts and Drowning Victims*, 2006.
- . *Advisory Statement on Voluntary Hyperventilation Preceding Underwater Swimming*, 2009.
- Armbruster, D.A.; Allen, R.H.; and Billingsley, H.S. *Swimming and Diving*. 6th ed. St. Louis: The C.V. Mosby Company, 1973.

- Association for the Advancement of Health Education. "Counting the Victims." *HE-XTRA* 18 (1993):8.
- Baker, S.P.; O'Neill, B.; and Ginsburg, M.J. *The Injury Fact Book*. 2nd ed. Lexington, Massachusetts: Lexington Books, D.C. Heath and Co., 1991.
- Beringer, G.B., et al. "Submersion Accidents and Epilepsy." *American Journal of Diseases of Children* 137 (1983):604–605.
- Bierens, Joost J.L.M.; *Handbook on Drowning*. Berlin/Heidelberg: Springer-Verlag, 2006.
- Brewster, C.B. *Open Water Lifesaving: The United States Lifesaving Association Manual*. 2nd ed. Boston: Pearson Custom Publishing, 2003.
- Brown, V.R. "Spa Associated Hazards—An Update and Summary." Washington, D.C.: U.S. Consumer Product Safety Commission, 1981.
- Bruess, C.E.; Richardson, G.E.; and Laing, S.J. *Decisions for Health*. 4th ed. Dubuque, Iowa: William C. Brown Publishers, 1995.
- The Canadian Red Cross Society. *Lifeguarding Manual*. Yardley, Pennsylvania: StayWell Health & Safety Solutions, 2009.
- Centers for Disease Control and Prevention. "Drownings at U.S. Army Corps of Engineers Recreation Facilities, 1986–1990." *Morbidity and Mortality Weekly Report* 41 (1992):331–333.
- . "Drownings in a Private Lake—North Carolina, 1981–1990." *Morbidity and Mortality Weekly Report* 41 (1992):329–331.
- . "Suction-Drain Injury in a Public Wading Pool—North Carolina, 1991." *Morbidity and Mortality Weekly Report* 41 (1992):333–335.
- . *Suggested Health and Safety Guidelines for Recreational Water Slide Flumes*. Atlanta, Georgia: U.S. Department of Health and Human Services, 1981.
- . *Swimming Pools—Safety and Disease Control Through Proper Design and Operation*. Atlanta, Georgia: United States Department of Health, Education, and Welfare, 1976.
- Chow, J.M. "Make a Splash: Children's Pools Attract All Ages." *Aquatics International* (1993):27–32.
- Clayton, R.D., and Thomas, D.G. *Professional Aquatic Management*. 2nd ed. Champaign, Illinois: Human Kinetics, 1989.
- Committee on Trauma Research; Commission on Life Sciences; National Research Council; and the Institute of Medicine. *Injury in America*. Washington, D.C.: National Academy Press, 1985.
- Consumer Guide with Chasnoff, I.J.; Ellis, J.W.; and Fainman, Z.S. *The New Illustrated Family Medical & Health Guide*. Lincolnwood, Illinois: Publications International, Ltd., 1994.
- Council for National Cooperation in Aquatics. *Lifeguard Training: Principles and Administration*. New York: Association Press, 1973.
- Craig, A.B., Jr. "Underwater Swimming and Loss of Consciousness." *The Journal of the American Medical Association* 176 (1961):255–258.
- DeMers, G.E., and Johnson, R.L. *YMCA Pool Operations Manual*. 3rd ed. Champaign, Illinois: Human Kinetics, 2006.

- Ellis, J., et al. *National Pool and Waterpark Lifeguard Training Manual*. Alexandria, Virginia: National Recreation and Park Association, 1993 and 1991.
- Ellis & Associates. *International Lifeguard Training Program*. Burlington, Massachusetts: Jones & Bartlett Learning. 2006
- Fife, D.; Scipio, S.; and Crane, G. "Fatal and Nonfatal Immersion Injuries Among New Jersey Residents." *American Journal of Preventive Medicine* 7 (1991):189–193.
- Forrest, C., and Fraleigh, M.M. "Planning Aquatic Playgrounds With Children In Mind: Design A Spray Park Kids Love." *California Parks & Recreation* (Summer 2004):12.
- Gabriel, J.L., editor. *U.S. Diving Safety Manual*. Indianapolis: U.S. Diving Publications, 1990.
- Gabrielsen, M.A. "Diving Injuries: Research Findings and Recommendations for Reducing Catastrophic Sport Related Injuries." Presented to the Council for National Cooperation in Aquatics. Indianapolis, 2000.
- . *Swimming Pools: A Guide to Their Planning, Design, and Operation*. 4th ed. Champaign, Illinois: Human Kinetics, 1987.
- Getchell, B.; Pippin, R.; and Varnes, J. *Health*. Boston: Houghton Mifflin Co., 1989.
- Hedberg, K., et al. "Drownings in Minnesota, 1980–85: A Population-Based Study." *American Journal of Public Health* 80 (1990):1071–1074.
- Huint, R. *Lifeguarding in the Waterparks*. Montreal: AquaLude, Inc., 1990.
- Idris A.H.; Berg, R.; Bierens, J.; Bossaert, L; Branche, C.; Gabrielli, A.; Graves, S.A.; Handley, J.; Hoelle, R.; Morley, P.; Pappa, L.; Pepe, P.; Quan, L.; Szpilman, D.; Wigginton, J.; and Modell, J.H. Recommended Guidelines For Uniform Reporting of Data From Drowning: the "Utstein Style". *Circulation*, 108 (2003):2565–2574.
- Kowalsky, L., editor. *Pool-Spa Operators Handbook*. San Antonio, Texas: National Swimming Pool Foundation, 1990.
- Lierman, T.L., editor. *Building a Healthy America: Conquering Disease and Disability*. New York: Mary Ann Liebert, Inc., Publishers, 1987.
- Lifesaving Society. *Alert: Lifeguarding in Action*. 2nd ed. Ottawa, Ontario: Lifesaving Society, 2004.
- Litovitz, T.L.; Schmitz, B.S.; and Holm, K.C. "1988 Annual Report of the American Association of Poison Control Centers National Data Collection System." *American Journal of Emergency Medicine* 7 (1989):496.
- Livingston, S.; Pauli, L.L.; and Pruce, I. "Epilepsy and Drowning in Childhood." *British Medical Journal* 2 (1977):515–516.
- Marion Laboratories. *Osteoporosis: Is It in Your Future?* Kansas City: Marion Laboratories, 1984.
- MayoClinic.com. Dehydration Overview. <http://www.mayoclinic.com/health/dehydration/ds00561>. Accessed August 2011.
- Mitchell, J.T. "Stress: The History, Status and Future of Critical Incident Stress Debriefings." *JEMS: Journal of Emergency Medical Services* 13 (1988):47–52.
- . "Stress and the Emergency Responder." *JEMS: Journal of Emergency Medical Services* 15 (1987):55–57.
- Modell, J.H. "Drowning." *New England Journal of Medicine* 328 (1993):253–256.
- National Committee for Injury Prevention and Control. *Injury Prevention: Meeting the*

- Challenge*. New York: Oxford University Press as a supplement to the *American Journal of Preventive Medicine*, Volume 5, Number 3, 1989.
- National Safety Council. *Injury Facts, 1999 Edition*. Itasca, Illinois: National Safety Council, 1999.
- National Spa and Pool Institute. *American National Standard for Public Swimming Pools*. Alexandria, Virginia: National Spa and Pool Institute, 1991.
- New York State Department of Public Health. *Drownings at Regulated Bathing Facilities in New York State, 1987–1990*. Albany, New York: New York State Department of Health, 1990.
- O'Connor, J. "A U.S. Accidental Drowning Study, 1980–1984." Thesis, University of Oregon, 1986.
- O'Donohoe, N.V. "What Should the Child With Epilepsy Be Allowed to Do?" *Archives of Disease in Childhood* 58 (1983):934–937.
- Orlowski, J.P.; Rothner, A.D.; and Lueders, H. "Submersion Accidents in Children With Epilepsy." *American Journal of Diseases of Children* 136 (1982):777–780.
- Payne, W.A., and Hahn, D.B. *Understanding Your Health*. 7th ed. St. Louis: McGraw Hill Companies, 2002.
- Pearn, J. "Epilepsy and Drowning in Childhood." *British Medical Journal* 1 (1977):1510–1511.
- Pearn, J.; Bart, R.; and Yamaoka, R. "Drowning Risks to Epileptic Children: A Study From Hawaii." *British Medical Journal* 2 (1978):1284–1285.
- Pia, F. "Observations on the Drowning of Nonswimmers." *Journal of Physical Education* (July 1974):164–167.
- . *On Drowning*, Water Safety Films, Inc. (1970).
- . "Reducing Swimming Related Drowning Fatalities." *Pennsylvania Recreation and Parks* (Spring 1991):13–16.
- . "The RID Factor as a Cause of Drowning." *Parks and Recreation* (June 1984):52–67.
- Quan, L., and Gomez, A. "Swimming Pool Safety—An Effective Submersion Prevention Program." *Journal of Environmental Health* 52 (1990):344–346.
- Rice, D.P.; MacKenzie, E.J.; et al. *Cost of Injury in the United States: a Report to Congress 1989*. San Francisco, California: Institute for Health and Aging, University of California, and Injury Prevention Center, The Johns Hopkins University, 1989.
- Robertson, L.S. *Injury Epidemiology*. 2nd ed. New York: Oxford University Press, 1998.
- The Royal Life Saving Society Australia. *Lifeguarding*. 3rd ed. Marrickville, NSW: Elsevier Australia, 2001.
- The Royal Life Saving Society UK. *The Lifeguard*. 2nd ed. RLSS Warwickshire, UK, 2003.
- Spinal Cord Injury Information Network. Facts and Figures at a Glance—February 2011. <http://www.spinalcord.uab.edu>. Accessed August 2011.
- Spray Parks, Splash Pads, Kids-Cool! <http://www.azcentral.com/families/articles/0514gr-mombeat14Z12.html>. Accessed August 2011.
- Strauss, R.H., editor. *Sports Medicine*. Philadelphia: W.B. Saunders Co., 1984.
- Torney, J.A., and Clayton, R.D. *Aquatic Instruction, Coaching and Management*. Minneapolis, Minnesota: Burgess Publishing Co., 1970.

- . *Aquatic Organization and Management*. Minneapolis, Minnesota: Burgess Publishing Co., 1981.
- United States Lifeguard Standards Coalition. *United States Lifeguard Standards*. January 2011. [http://www.lifeguardstandards.org/pdf/USLSC\\_FINAL\\_APPROVAL\\_1-31-11.pdf](http://www.lifeguardstandards.org/pdf/USLSC_FINAL_APPROVAL_1-31-11.pdf). Accessed August 2011.
- White, J.E. *Starguard: Best Practices for Lifeguards*. Champaign, Illinois: Human Kinetics, 2006.
- Williams, K.G. *The Aquatic Facility Operator Manual*. 3rd ed. The National Recreation and Park Association, National Aquatic Section, 1999.
- Wintemute, G.J., et al. "The Epidemiology of Drowning in Adulthood: Implications for Prevention." *American Journal of Preventive Medicine* 4 (1988):343–348.
- World Waterpark Association. *Considerations for Operating Safety*. Lenexa, Kansas: World Waterpark Association, 1991.
- YMCA of the USA. *On the Guard II*. 4th ed. Champaign, Illinois: Human Kinetics, 2001.

---

## SPECIAL THANKS

Special thanks to Lead Technical Reviewers for video and photography: David Bell, Boy Scouts of America National Aquatic Committee and Shawn DeRosa, The Pennsylvania State University Manager of Aquatic Facilities and Safety Officer for Intercollegiate Athletics; Dan Jones and City of Norfolk lifeguards; Lauren Scott, Ginny Savage and the lifeguarding staff of Water Country U.S.A; Bill Kirkner, Mark Bonitabus, Sue Szembroth and the lifeguarding staff of the JCC of Greater Baltimore; Mike McGoun and the lifeguarding staff of the Coral Springs Aquatic Center; and Angela Lorenzo-Clavell and the City of Chandler lifeguarding staff for opening their facilities to us and providing their expertise with our photography and video shoots. We would also like to express our appreciation to Barbara Proud, Simon Bruty, Bernardo Nogueira, Primary Pictures crew, the Canadian Red Cross and the many volunteers who made the photos and videos a reality.

# INDEX

## A

Abandonment, 6, 273  
 Abdominal injuries, 226–27  
 Abdominal thrusts in airway obstruction, 170–71, 184–85  
 Abrasions, 222, 273  
 Absorbed poisons, 233  
 Accidental fecal release (AFR), 24  
 Action plan in emergency. *See* Emergency action plan  
 Active drowning victim, 37–38, 40, 273  
   emergency action plan on, 72, 73  
   front rescue approach to, 92, 107  
   rear rescue approach to, 92, 108–9  
   rescue board skills for, 95, 123–24  
 Administration of facility, safety checklist on, 17  
 Adults, 146  
   AED use on, 199  
   airway obstruction in, 170, 171, 172, 184–85  
   call first or care first in emergencies of, 147  
   chest compressions in, 197, 208–9  
   primary assessment of, 144, 145, 151–52  
   pulse check in, 144, 151  
   ventilations in, 145, 152, 169, 181, 183, 197, 209  
 Advice provided to victim after emergency, 81  
   in land emergencies, 146  
   in water rescue, 89–90  
 AED. *See* Automated external defibrillator  
 Age  
   care appropriate for, 146  
   and employment limitations, 31  
 Agonal gasps, 34, 163, 273  
 AIDS, 132–33, 135, 137, 273, 275  
 Air in stomach, 168  
 Airway adjuncts, 14, 178–79, 273  
 Airway obstruction, 169–72, 184–88  
   airway adjuncts in, 14, 178–79, 273  
   anatomical, 170, 273  
   in conscious victim, 170–71, 184–86  
   maneuvers opening, 143–44, 149–51, 153  
   mechanical, 170, 276  
   suctioning in, 180  
   in unconscious victim, 171–72, 187–88  
   universal sign of choking in, 170, 279  
 Alcohol use, 39

Allergic reactions  
   anaphylaxis in, 166–67, 273  
   to insect stings, 230, 231  
   SAMPLE mnemonic for  
     history-taking on, 216, 239  
 Amputation injuries, 227  
 Anaphylaxis, 166–67, 273  
   shock in, 166, 273  
 Angina pectoris, 194  
 Animal bites, 227  
 Ankle drag, 142, 158  
 Approach to victim in water rescue, 91, 92, 107–10  
   with rescue board, 95, 122  
 Area of responsibility, 273  
   blind spots in, 42, 43, 273  
 Arm splints, 243  
 Arm weakness in stroke, 220  
 Aspirin in heart attack, 195–96  
 Assessment, 273  
   primary, 142–46, 151–54  
   of scene, 141  
   secondary, 146, 216–17, 240–41  
 Assists, 91–92, 106  
   reaching, 92, 106, 277  
   simple, 92, 106  
   walking, 94, 120, 142, 156  
 Asthma, 161, 162, 273  
 Asystole, 199, 273  
 Automated external defibrillator (AED), 14–15, 198–203, 212–13, 273  
   for children and infants, 146, 199  
   in CPR sequence, 199, 213  
   maintenance of, 202–3  
   in multiple rescuers, 203, 205  
   precautions in use of, 200  
   in special situations, 200–202  
   steps in use of, 212–13  
   and transdermal medication patches, 200, 201, 212  
   in wet conditions, 200, 202  
 Avulsion injuries, 222, 273

## B

Back blows in airway obstruction, 170–71, 184–85, 186  
 Backboards, 13, 249, 262–71, 273  
   in deep water areas, 265–66  
   head and chin support in, 253  
   in land emergencies, 256–57, 269–71  
   removal of victim from water using, 94, 118–19, 251, 254, 267–69  
   returned to duty after emergency, 81  
   in shallow water areas, 254, 262–64  
   in special situations, 254–56  
   in speed slide areas, 256, 268–69  
 Back-up coverage in emergency, 45, 46, 78, 275  
 Bag-valve-mask resuscitators, 14, 164–65, 206, 273  
   oxygen delivery with, 180, 190  
   ventilation technique with, 182–83  
 Bandages, 273  
   in eye injuries, 225  
   in open wounds with bleeding, 223, 242  
   in snakebites, 230  
 Beach drag, 94, 120  
 Behavior  
   of active drowning victim, 37–38, 40  
   dangerous, 35–36, 39  
   of distressed swimmer, 36–37, 40  
   of lifeguard, professional manner in, 55  
   of passive drowning victim, 38–40  
   violent, 56  
 Biohazardous material disposal after emergency, 81, 139, 148  
 Bites and stings, 227, 228–32  
   disease transmission in, 134, 279  
 Bleeding, 223, 242  
   contamination of pool water in, 24  
   exposure to bloodborne pathogens in, 132–40  
   internal, 221–22  
   from nose, 224  
   in scalp injuries, 226  
   scanning victim for, 145, 152, 153  
 Blind spots, 42, 43, 273  
 Blood in pool water, 24  
 Bloodborne pathogens, 32, 132–40, 273  
   exposure control plan, 135–36  
   exposure incident, 140  
   federal standards for protection from, 32, 135–36, 273  
   personal protective equipment for protection from, 14, 137–38  
   standard precautions in exposure to, 136, 278  
 Body piercings, and AED use, 202  
 Body substance isolation precautions, 136, 273  
 Bone, 273  
   fractures of. *See* Fractures  
 Booking procedure for group visits to facility, 66  
 Breastbone injuries, splints in, 245  
 Breath-holding, extended, as dangerous behavior, 35, 39

Breathing, checking for, 144, 151, 153  
   in cardiac emergencies, 203  
   in respiratory arrest, 162–63  
 Breathing barriers for personal protection, 137, 164–65  
 Breathing emergencies, 159–92  
   airway adjuncts in, 14, 178–79, 273  
   in airway obstruction, 169–72, 184–88  
   in anaphylaxis, 166–67  
   in asthma, 161  
   oxygen provided in, 172–80, 189–91  
   in respiratory arrest, 160, 162–64  
   in respiratory distress, 160–62  
   in respiratory failure, 160  
   suctioning in, 180, 191–92  
   ventilations given in, 163–69, 181–83  
 Breathing techniques. *See* Ventilations  
 Bromine, 23  
 Bruises, 221  
 Buddy boards, 69, 70  
 Buddy checks, 65, 66, 69–70  
 Buddy systems, 68–70  
 Buoyant vest, 63  
 Buoys, 273  
   rescue, 13  
   ring, 15, 277  
 Burns, 221, 227–28, 229  
   partial thickness, 227, 228, 277  
   superficial, 227, 228, 278  
 Bystanders, 79, 274

## C

Call first or care first, 147  
 Camps, 68–70, 75  
 Carbon monoxide, 232, 274  
 Cardiac arrest, 196, 274  
   in children, 199  
 Cardiac chain of survival, 194  
 Cardiac emergencies, 193–213  
   AED use in, 198–203, 212–13  
   in cardiac arrest, 196  
   cardiopulmonary resuscitation in, 144, 145, 194, 196–213  
   chain of survival in, 194  
   in heart attack, 194–96  
   multiple rescuers in, 203–6  
   oxygen in, 172  
 Cardiopulmonary resuscitation (CPR), 144–45, 194, 196–213, 274  
   in adults, 151–52  
   and AED use, 199, 213  
   airway opening in, 143–44, 149–51, 153  
   barriers for personal protection in, 137, 164–65  
   in call first or care first

*Cardiopulmonary resuscitation*  
*continued*

- situations, 147
- chest compressions in. *See* Chest compressions
- in children and infants, 152–54, 197, 198
- equipment used in, 13, 14
- in multiple rescuers, 203–6
- in one rescuer, 207–8
- recovery position in, 145–46, 154–55
- in two rescuers, 198, 208–11
- ventilations in. *See* Ventilations
- Cardioverter-defibrillator, implantable, AED use in, 201
- Care
  - consent to, 7, 170, 172, 274, 276
  - refusal of, 7–8, 277
  - standard of, 6, 278
- Care first or call first, 147
- Carrying methods
  - front-and-back carry, 94, 121
  - pack-strap carry, 142, 157
  - two-person seat carry, 142, 156–57
- Catch pools, 61, 274
  - assists in, 92
  - head, neck, and spinal injuries in, 255–56
- Chain of command, 80, 274
- Chaperones in group visits to facility, 65, 66
- Chemicals, 31–32, 274
  - burns from, 229
  - disinfectant, 22–23
  - eye injuries from, 225
  - Material Safety Data Sheets on, 31, 232, 276
  - poisonous, 232–33
- Chest compressions
  - in airway obstruction, 172, 187
  - in cycle with ventilations, 144–45, 182, 183, 196–98
  - effectiveness of, 196
  - in multiple rescuers, 203, 205, 206
  - in one rescuer, 207–8
  - in two rescuers, 183, 208–11
- Chest hair affecting AED use, 202
- Chest injuries, splints in, 245
- Chest thrusts in airway obstruction, 171, 185, 186
- Childbirth, emergency, 237–38
- Children
  - AED use on, 146, 199, 212
  - age range of, 146
  - airway adjuncts for, 178–79
  - airway obstruction in, 170, 171, 172, 178–79, 184–85
  - bag-valve-mask resuscitators for, 165
  - call first or care first in emergencies of, 147
  - chest compressions in, 197, 198, 208–9
  - dangerous behaviors of, 35
  - fecal incidents, 24, 58
  - oxygen therapy in, 172, 175
  - play structures for, 58–59
  - primary assessment of, 152–54
  - pulse check in, 144
  - resuscitation masks for, 164
  - surveillance of, 58
  - two-rescuer CPR in, 198, 208–9
  - ventilations in, 145, 153, 154, 169, 181, 183, 197, 198, 209
  - at youth camps, 68–70, 75
- Chloramines, 22
- Chlorine, 22, 23
  - in spill clean-up, 140
- Choking, 170–72, 184–88. *See also* Airway obstruction
- Circulation
  - in cardiac emergencies, 203
  - in musculoskeletal injuries, 236, 237
  - pulse checks of, 144, 151, 153
- Clearing swimming area in emergency, 78
- Closed wounds, 221–22, 274
- Clothes drag, 142, 158
- Cold application in RICE treatment, 236
- Cold-related emergencies, 234–35, 274
  - frostbite in, 235, 275
  - hypothermia in, 22, 101, 201–2, 234–35, 276
- Cold water rescues, 101
- Color-coded wrist bands or swim caps, 66
- Communication
  - on chemical hazards, 31–32
  - in injury prevention strategies, 53–56
  - nonverbal, 55
  - professional manner in, 55
  - with victim in water emergency, 89
  - whistle use in, 54
- Compact jump entry for water rescue, 91, 104–5
- Concussion, 249, 274
- Confidentiality, 6–7, 274
- Consent to care, 7, 274
  - implied, 170, 172, 276
- Contusions, 221
- Convulsions, 219, 274
- Cooling techniques in heat-related illnesses, 234
- CPR. *See* Cardiopulmonary resuscitation
- Cramps, in heat-related illness, 233, 275
- Critical incident, 274
  - stress in, 84–85, 274
- Cross bearings, 95–96, 274
- Cryptosporidium*, 24
- Current, 274
  - changes in, 21–22
  - head, neck, and spinal injuries in, 254–55
  - rip currents, 18–19
- Cyanosis, 160, 274

**D**

- Dangerous behaviors, 39
  - communication with patrons about, 54
  - surveillance for, 35–36
- Debriefing meeting after emergency, 84
- Decision making, 6
- Deep water areas
  - backboarding in, 265–66
  - equalizing pressure in, 99
  - head, neck and spinal injuries in, 249, 252, 254, 265–66
  - line search in, 97–98, 274
  - submerged victim in, 93, 97–98, 116–17
  - surface dives in, 97
  - swimming ability required for, 67–68
- Defibrillation, 194, 274
  - with automated external defibrillator, 198–203
- Dentures, 168, 170
- Diabetes mellitus, 218, 274
- Direct contact transmission of disease, 134, 274
- Disinfectants, 22–23
  - in spill clean-up, 140
- Dislocation of joint, 53, 235, 274
- Dispatching, 274
  - at water slides, 60
- Distractions, 43, 44, 277
- Distressed swimmers, 36–37, 40, 274
  - assists for, 91–92, 106
- Dives, 93, 97, 113–15
  - feet-first, 93, 97, 113–14
  - head-first, 93, 97, 114–15
- Diving area rules and regulations, 29
- Documentation. *See* Reports and documentation
- Drag methods
  - ankle drag, 142, 158
  - beach drag, 94, 120
  - clothes drag, 142, 158
- Dressings, 274
  - in burns, 228
  - in eye injuries, 225
  - in open wounds with bleeding, 223, 242
- Droplet transmission of disease, 134, 275
- Drop-off slides, 60, 274
- Drowning, 275
  - active victim in. *See* Active drowning victim
  - breathing emergencies in, 163
  - emergency action plan on, 72, 73
  - frothing in, 165
  - instinctive response in, 37, 276
  - nonfatal, 276
  - passive victim in. *See* Passive drowning victim
  - process of, 34, 53
  - recognition of, 36–41
- Drugs, 275
  - in anaphylaxis, 166–67

- aspirin in heart attack, 195–96
  - in asthma, 161
  - epinephrine, 166–67, 275
  - history-taking on, with SAMPLE mnemonic, 216, 239
  - in transdermal medication patches, 200, 201, 212
- Duty to act, 6, 275

**E**

- EAP. *See* Emergency action plan
- Electrical burns, 229
- Elevated stations, 47, 51
- Elevation of injured area in RICE treatment, 236
- Embedded objects, 226, 275
- Emergencies, 275
  - back-up coverage in, 45, 46, 78, 275
  - breathing, 159–92
  - cardiac, 193–213
  - first aid in, 214–45
  - in head, neck, and spinal injuries, 246–72
  - on land, 85–86, 140–46
  - outside of zone, 85–86
  - stop button used in, 64, 76–77, 275
  - water rescue in, 87–130
  - whistle use in, 54
- Emergency action plan, 10, 71–86, 275
  - activation of, 76, 88
  - back-up coverage in, 46, 49
  - decision making in, 6
  - example of, 73
  - implementation of, 76–85
  - in injuries and illnesses, 215
  - for instructional classes, 57
  - in land emergencies, 85–86, 140–46
  - management responsibilities for, 30
  - in missing person, 74–75
  - rescue equipment in, 12
  - in respiratory distress, 162
  - safety team role in, 72–76
  - in severe weather conditions, 25, 26, 27
- Emergency medical services (EMS), 275
  - back-up coverage in calling for, 46
  - in cardiac chain of survival, 194
  - emergency action plan on, 78
  - exposure to bloodborne pathogens, 133
  - in heart attack, 194, 195
  - indications for calling, 142–43
  - in internal bleeding, 221
  - lifeguard training with, 80
  - in missing person, 74, 75
  - refusal of care from, 7–8
  - in respiratory distress, 162
  - and safety team role, 73–76
  - in seizures, 219
  - in stroke, 220

- Emphysema, 162, 275
- Employers
- age limitation policies of, 31
  - evaluation of lifeguards by, 8
  - exposure control plan of, 135–36
  - in-service training provided by, 9, 71, 276
  - policies and procedures manual of, 9, 277
  - potential, interview with, 77
- Enforcement of rules, 54–56
- Engineering controls, 138–39, 275
- Entry for water rescue, 90–91, 103–5
- compact jump, 91, 104–5
  - with mask and fins, 100
  - run-and-swim, 91, 105
  - slide-in, 90–91, 100, 103
  - stride jump, 91, 100, 103–4
- Epinephrine, 166–67, 275
- Equalizing pressure underwater, 99
- Equipment, 12–15
- cleaning and disinfection of, 139
  - disposal of, 139
  - inspection after emergency, 81
  - safety checklist on, 16
  - for young children, 58
- Escapes, 100, 128–29
- front head-hold, 100, 128
  - rear head-hold, 100, 128–29
- Evacuation of facility, 79
- Evaluation of lifeguards, pre-service and on-the-job, 8
- Examination of conscious person, 216–17, 240–41
- Exhaustion, 275
- in heat-related illness, 233–34, 275
- Exit point in water rescue, moving victim to, 89
- Eye injuries, 225
- Eyewear, protective, 137, 138
- F**
- Facial weakness in stroke, 220
- Facility
- evacuation of, 79
  - in-service training provided by, 9, 71, 276
  - policies and procedures manual of, 9, 277
  - reopening of, 81, 84
  - safety of, 11–32
  - selection of, as place of employment, 77
  - single-guard, 77
  - spokesperson of, 84, 278
  - surveillance of, 275
- Fainting, 218, 275
- FAST approach to stroke, 220
- Fecal incidents, 24, 58
- Feet-first surface dive, 93, 97, 113–14
- Fibrillation, 275
- ventricular, 198–99, 279
- FIND decision-making model, 6
- Finger splints, 245
- Fins, 97, 98, 99–100
- First aid, 214–45
- in cold-related emergencies, 234–35
  - in heat-related illness, 233–34
  - in injuries, 215, 220–32, 235–37, 242–45
  - in poisonings, 232–33
  - in sudden medical illness, 215, 217–20
- First aid kit and supplies, 15, 16, 215
- Fitness, swimming for, 5
- Flag warning of rip current, 19
- Floating play structures, 59
- Floating stations, 48
- Flotation vest, 63
- Fog, 26
- Food intake, SAMPLE mnemonic
- for history-taking on, 216, 239
- Foot drag, 142, 158
- Foot splints, 244–45
- Foreign bodies
- airway obstruction from, 170–72, 184–88
  - in eye, 225
  - in open wounds, 226
- Fractures, 53, 235, 275
- with bleeding, 223
  - open, 223, 237
  - of skull, 226
- Free-fall slides, 60, 275
- Front-and-back carry method, 94, 121
- Front head-hold escape, 100, 128
- Front rescue of active victim, 92, 107
- Frostbite, 235, 275
- Frothing, 165
- G**
- Gasp reflex, 101, 275
- Gastroenteritis, 24
- Gloves, 13, 137–38
- removal of, 148
- Good Samaritan laws, 7–8
- Gowns, as personal protective equipment, 137, 138
- Ground-level stations, 47, 50
- Group visits to facilities, 65–68
- H**
- Hail storms, 26
- H.A.I.N.E.S. (high arm in endangered spine) recovery position, 146, 152, 154
- Hand hygiene for infection control, 138
- Hand splints, 245
- Hazards
- biohazardous material disposal after emergency, 81, 139, 148
  - chemical, 31–32, 274
  - underwater, 20
  - in water condition changes, 21–23
  - in weather conditions, 23–27
- Head, neck and spinal injuries, 53, 246–72
- backboards in. *See* Backboards
  - in catch pools, 255–56
  - causes of, 247
  - in deep-water areas, 249, 252, 254, 265–66
  - head and chin support in, 252–53
  - head splint technique in, 249, 258–62
  - in-line stabilization in, 248, 249, 252–53, 272
  - on land, 256–57, 269–72
  - in moving water, 254–55
  - recovery position in, 146
  - removal of victim from water in, 251, 253, 254, 267–69
  - in shallow water areas, 249, 252, 254, 261–64
  - signs and symptoms in, 247
  - in speed slides, 256, 268–69
  - in standing victim, 256–57, 269–71
  - in submerged victim, 249, 260–61
  - ventilations in, 168
- Head-first surface dive, 93, 97, 114–15
- Head splint technique, 249, 258–62
- with face-down victim, 249, 259–60, 261–62
  - with face-up victim, 249, 258
  - with submerged victim, 249, 260–61
- Head-tilt/chin-lift maneuver, 143, 149, 151, 153
- in head, neck, or spinal injuries, 168
- Heart attack, 194–96, 276
- Heat-related illnesses, 233–34, 275
- cramps in, 233, 275
  - exhaustion in, 233–34, 275
  - heat stroke in, 234, 275
- Height requirements at water slides, 60
- Hepatitis B, 132, 133, 275
- personal protective equipment in exposure to, 137
  - risk of transmission, 135
  - vaccination against, 135, 136
- Hepatitis C, 132, 133, 275
- personal protective equipment in exposure to, 137
  - risk of transmission, 135
- High arm in endangered spine (H.A.I.N.E.S.) recovery position, 146, 152, 154
- History-taking, SAMPLE mnemonic for, 216, 239
- HIV infection and AIDS, 132–33, 135, 137, 273, 275
- Hot tubs and spas, 278
- rules and regulations on, 29–30
  - water quality in, 22–23
- Human bites, 227
- Hyperglycemia, 218, 275
- Hyperthermia, in spa or hot tub use, 29, 30
- Hyperventilation, 276
- in cold water, 101
  - as dangerous behavior, 35, 39
- Hypochlorous acid, 22
- Hypoglycemia, 218, 276
- Hypothermia, 22, 234–35, 276
- AED use in, 201–2
  - in cold water, 101
- Hypoxia, 160, 172, 177, 276
- I**
- Illness
- from bloodborne pathogens, 132–40
  - recognition of, 36, 38
  - from recreational water, 24
  - sudden, 215, 217–20
- Immobilization, 236, 237, 276
- backboards in. *See* Backboards
  - in RICE treatment, 236
  - splints in, 237, 243–45
- Implied consent, 170, 172, 276
- Incidents, 276
- critical, 84–85, 274
  - exposure to bloodborne pathogens in, 140
  - fecal, 24, 58
  - report filed on, 7, 79–81, 276. *See also* Reports and documentation
- Indirect contact transmission of disease, 134, 276
- Infants
- AED use on, 199, 212
  - age range of, 146
  - airway adjuncts for, 178–79
  - airway obstruction in, 170, 171, 172, 178–79, 186
  - bag-valve-mask resuscitators for, 165
  - call first or care first in emergencies of, 147
  - chest compressions in, 197, 198, 210–11
  - oxygen therapy in, 172, 175
  - primary assessment of, 152–54
  - pulse check in, 144
  - resuscitation masks for, 164
  - two-rescuer CPR in, 198, 210–11
  - ventilations in, 145, 153, 154, 169, 181, 183, 197, 198, 210–11
- Infections
- from bloodborne pathogens, 132–40
  - from water contamination, 24
- Ingested poisons, 232
- Inhalation
- of pathogens, 134
  - of poisons, 232–33, 276
- Injuries, 215, 276
- AED use in, 202
  - in bites and stings, 227, 228–32

*Injuries continued*

bleeding in, 223, 242. *See also* Bleeding of head, neck and spinal cord, 246–72  
 life-threatening, 53  
 musculoskeletal, 235–37, 243–45  
 non-life-threatening, 53  
 prevention of, 52–70  
 severed body parts in, 227  
 shock in, 224  
 of skin and soft tissues, 220–28

In-line stabilization of head and neck, 248, 249, 252–53, 276 on land, 272  
 modified, with head and chin support, 252–53  
 in special situations, 254–56

Insect stings, 230–31

In-service training, 9, 71, 276

Instinctive drowning response, 37, 276

Instructional classes, patron surveillance and safety in, 57–58

Intervals in swim training, 5, 276

Interview with potential employers, 77

Intrusions on surveillance, and RID factor, 44, 277

**J**

Jaw-thrust maneuver, 143, 150–51  
 with head extension, 143, 150, 151, 153  
 without head extension, 143, 150–51, 153, 168

Jellyfish stings, 231–32

Jewelry, and AED use, 202

Joints, 276  
 dislocation of, 53, 235, 274

**K**

Kayaks, 48, 95, 127

**L**

Lacerations, 222, 276

Land emergencies, 85–86, 140–46  
 backboarding procedure in, 256–57, 269–71  
 head, neck and spinal injuries in, 256–57, 269–72  
 moving victim in, 141–42  
 outside of surveillance zone, 85–86  
 primary assessment in, 142–46  
 scene assessment in, 141  
 secondary assessment in, 146

Laryngospasm, 34, 276

Legal considerations, 6–8

Leg splints, 244

Lifeguards, 1–10, 276  
 characteristics of, 3–4  
 decision making by, 6

evaluation of, 8  
 fitness of, 5  
 legal considerations, 6–8  
 primary responsibility of, 2, 33, 277  
 professionalism of, 55  
 rotation of, 48–49, 50–51  
 roving, 47–48, 65, 277  
 secondary responsibilities of, 2, 44, 278  
 as team, 9–10, 276  
 training of, 8–9. *See also* Training

Life jackets, 62–63, 276  
 in group visits to facility, 65  
 improper fit of, 35, 36

Life-threatening injuries, 53

Ligaments, 276  
 sprain of, 235, 278

Lightning, 25

Line-and-reel attached to rescue equipment, 276  
 in cold water rescues, 101

Line search in deep water, 97–98, 274

**M**

Management personnel of facility, safety responsibilities of, 30–32

Marine life stings, 231–32

Masks  
 non-rebreather, 175, 177, 180, 190, 276  
 as personal protective equipment, 137, 138  
 resuscitation. *See* Resuscitation masks  
 swimming, for underwater searches, 97, 98–99, 100

Mask-to-nose ventilations, 168–69

Mask-to-stoma ventilations, 169

Material Safety Data Sheet, 31, 232, 276

Medical emergencies, 53  
 passive drowning in, 38  
 recognition of, 36, 38  
 in sudden illness, 215, 217–20

Medications. *See* Drugs

Metal surfaces, and AED use, 202

Missing person procedures, 74–75, 96–98  
 deep water search in, 97–98  
 shallow-water search in, 96–97

Motorized watercraft for rescues, 127

Mouth injuries, 225–26

Moving victim, 156–58  
 in land emergencies, 141–42  
 for removal from water. *See* Removal of victim from water

Multiple rescuers  
 backboarding with, 250–51, 263–71  
 in cardiac emergencies, 203–5

Multiple-victim rescue, 93, 111

Muscle, 276  
 injuries of, 235–37

Myocardial infarction, 194–96, 276

**N**

Nasal cannulas, 276  
 oxygen delivery with, 175, 176, 190

Nasopharyngeal airways, 179

National Weather Service, 25

Neck injuries. *See* Head, neck, and spinal injuries

Needlestick injuries, 135, 136

Negligence, 6, 276  
 and Good Samaritan laws, 7

9-1-1 calls, in call first or care first situations, 147

Nitroglycerin transdermal patch, AED use in, 200, 201

Non-rebreather mask, 276  
 oxygen delivery with, 175, 177, 180, 190

Nonverbal communication, 55

Nosebleeds, 224

**O**

Occupational Safety and Health Administration (OSHA), 32, 135–36, 276

Open wounds, 222–23, 276

Operational conditions of facility, safety checklist on, 16

Opportunistic infections, 132, 277

Orientation  
 annual or preseason, 8  
 on emergency action plan, 71  
 of group visiting facility, 66, 67

Oropharyngeal airways, 178–79

Oximetry, pulse, 176–77

Oxygen, 172–80, 189–91, 277  
 cylinders of, 172–73, 174, 189  
 delivery devices, 14, 175–80, 189–90, 277  
 fixed-flow-rate, 173–74  
 safety precautions with, 174  
 saturation monitoring, 176–77  
 variable-flow-rate, 173

**P**

Pacemakers, AED use in, 201

Pack-strap carry, 142, 157

Paralysis, 53, 277

Passive drowning victim, 38–40, 277  
 emergency action plan on, 72, 73  
 rear rescue approach to, 92, 109–10  
 rescue board skills for, 95, 124–26

Pathogens, 277  
 bloodborne. *See* Bloodborne pathogens

Patron surveillance, 33–51, 277

blind spots in, 42, 43, 273  
 for dangerous behaviors, 35–36  
 in group visits to facility, 65–68  
 in instructional classes, 57–58  
 lifeguard stations in, 46–49, 50–51  
 at play structures, 58–59  
 professionalism in, 55  
 rotation procedure for breaks in, 48–49, 50–51  
 rule enforcement in, 54–56  
 scanning method in, 41–44  
 in special rides and attractions, 59–64  
 in uncooperative or violent patrons, 56  
 victim recognition in, 36–41  
 of young children, 58  
 at youth camps, 68–70  
 zone of responsibility in, 44–46

Personal flotation devices, 62–63, 277

Personal protective equipment, 14, 137–38

pH of water, 22–23

Phoning for help, in call first or care first situations, 147

Physical examination of conscious person, 216–17, 240–41

Piercings, body, and AED use, 202

Piers, 277  
 safety checks of, 20–21

Plants, poisonous, 233

Play structures, guarding zones with, 58–59

Poison Control Center, 232, 277

Poisons, 232–33, 276, 277

Policies and procedures manual, 9, 277  
 on age limitations for employment, 31

Pregnancy  
 AED use in, 202  
 airway obstruction in, 171, 185  
 emergency childbirth in, 237–38

Pre-service evaluation, 8

Preventive lifeguarding, 52–70, 277  
 communication with patrons in, 53–56  
 in instructional classes, 57–58  
 life jacket use in, 62–63  
 at play structures, 58–59  
 in recreational swim groups, 65–68  
 at rides and attractions, 59–64  
 of young children, 58  
 at youth camps, 68–70

Primary assessment, 142–46, 151–54  
 in adults, 144, 145, 151–52  
 in children and infants, 152–54

- Primary responsibility of lifeguards, 2, 33, 277
- Professionalism, 55
- Public relations, professionalism in, 55
- Pulse checks, 144, 151, 153
- Pulse oximetry, 176–77
- Puncture wounds, 222, 277
- Q**
- Quality of water, 22–23 and recreational water illnesses, 24
- R**
- Rainfall, heavy, 21, 26
- Reaching assist, 92, 106, 277
- Reaching poles, 15, 277 with shepherd's crook, 15, 278
- Rear head-hold escape, 100, 128–29
- Rear rescue of active victim, 92, 108–9 of passive victim, 92, 109–10
- Recognition of drowning in active victim, 37–38, 40 and distress in swimmer, 36–37, 40 in passive victim, 38–40 and RID factor, 44, 277
- Recovery position, 145–46, 152, 154–55 H.A.I.N.E.S. (high arm in endangered spine), 146, 152, 154
- Recreational water illnesses, 24
- Refusal of care, 7–8, 277
- Regulations. *See* Rules and regulations
- Release of victim after emergency, 81 in land emergencies, 146 in water rescue, 90
- Removal of victim from water, 89, 93–94, 118–21 with backboard, 94, 118–19, 251, 254, 267–69 with beach drag, 94, 120 with front-and-back carry method, 94, 121 in head, neck and spinal injuries, 251, 253, 254, 267–69 of small victim from shallow water, 102, 130 from speed slides, 256, 268–69 with walking assist, 94, 120
- Reopening facility after emergency, 81, 84
- Reports and documentation, 7, 79–81, 276 on land emergencies, 146 legal considerations in, 7 on refusal of care, 8 sample form for, 82–83 on uncooperative patrons, 56 and University of North Carolina data gathering system, 86 on water rescue, 89
- Rescue bags, 96
- Rescue boards, 15, 89, 277 in active victim rescue, 95, 123–24 as floating station, 48 in passive victim rescue, 95, 124–26 in waterfront areas, 94–95, 122–26
- Rescue breathing. *See* Ventilations
- Rescue buoys, 13
- Rescue equipment, 12–15 inspection after emergency, 81 safety checklist on, 16
- Rescue skills in water, 87–130. *See also* Water rescue
- Rescue tubes, 12, 88–89, 91, 277
- Respiratory arrest, 160, 162–64, 172, 277
- Respiratory distress, 160–62, 277
- Respiratory failure, 160, 277
- Responsibilities of lifeguards, 2 primary, 2, 33, 277 secondary, 2, 44, 278 for zone of surveillance, 44–46, 279
- Responsiveness of victim, primary assessment of, 142, 151, 152
- Rest in RICE treatment, 236
- Resuscitation masks, 13, 145, 149–51, 164, 181, 277 and mask-to-nose ventilations, 168–69 and mask-to-stoma ventilations, 169 oxygen delivery with, 175, 177, 190
- Rib injuries, splints in, 245
- RICE (rest, immobilization, cold, elevation) treatment, 236
- RID (recognition, intrusion, distraction) factor, 44, 277
- Rides emergency stop button of, 64, 76–77, 275 patron surveillance on, 59–61 safety checklist on, 17
- Ring buoys, 15, 277
- Rip currents, 18–19
- Risk management, 17, 53, 277
- Rivers and streams, head, neck, and spinal injuries in, 255
- Rotation of lifeguards, 48–49, 50–51
- Roving stations, 47–48, 65, 277
- Rowboat use for rescues, 126–27
- Rules and regulations, 27–30, 277 enforcement of, 54–56 government regulations, 31, 32, 135–36 informing patrons about, 54 management responsibilities for, 30–32 patrons uncooperative with, 56
- Run-and-swim entry for water rescue, 91, 105
- S**
- Safety, 11–32 access to rescue equipment for, 12–14 facility safety checks for, 15–23, 81, 278 management responsibilities for, 30–32 rules and regulations for, 27–30 water conditions affecting, 21–23 weather conditions affecting, 23–27
- Safety checks, 15–23, 278 after emergency, 81 sample checklist for, 16–17
- Safety team, 9, 10, 273 emergency action plan on, 73–76
- SAMPLE mnemonic for history-taking, 216, 239
- Sanitation of facility, safety checklist on, 17
- Scalp injuries, 226
- Scanning, 41–44, 278 blind spots in, 42, 43, 273 challenges to, 42–44 guidelines on, 41–42 rotation procedure for breaks in, 48–49, 50–51
- Scene assessment, 141
- Scorpion stings, 228–29
- SCUBA classes, 57, 58, 65
- Searching techniques, 96–98 in deep water, 97–98, 274 in shallow water, 96–97
- Seat carry, two-person, 142, 156–57
- Secondary assessment, 146 of conscious person, 216–17, 240–41 SAMPLE mnemonic for history-taking in, 216, 239
- Secondary responsibilities of lifeguards, 2, 278 as intrusion on surveillance, 44
- Seiche, 22, 278
- Seizures, 143, 219–20, 278
- Severed body parts, 227
- Shallow water areas head, neck and spinal injuries in, 249, 252, 254, 261–64 head splint technique in, 249, 261–62 quick removal of small victim from, 102, 130 searching in, 97 spinal backboarding in, 254, 262–64 submerged victim in, 93, 96–97, 112
- Shepherd's crook, reaching poles with, 15, 278
- Shock, 224, 278 anaphylactic, 166, 273 in burns, 228
- Sighting technique, 95, 278 cross bearings in, 95–96, 274
- Signs and symptoms in head, neck and spinal injuries, 247 SAMPLE mnemonic for history-taking on, 216, 239
- Simple assist, 92, 106
- Single-guard facilities, 77
- Skin injuries, 220–28
- Skull fractures, 226
- Slide-in entry for water rescue, 90–91, 103 with mask and fins, 100
- Slides assists in, 92 backboarding procedure in, 256, 268–69 catch pool of, 61, 274 with drop-off, 60, 274 emergency action plan for, 76 free-fall, 60, 275 head, neck and spinal injuries on, 256, 268–69 patron surveillance at, 60–61 rules and regulations on, 28 safety checklist on, 17
- Snakebites, 230
- Soft tissues, 278 injuries of, 220–28
- Spas and hot tubs, 278 rules and regulations on, 30 water quality in, 22–23
- Spasm, 278 of larynx, 34, 276
- Speech changes in stroke, 220
- Speed slides, 60, 61, 278 backboarding procedure in, 256, 268–69
- Spider bites, 228–29
- Spill clean-up, 139–40
- Spinal backboards. *See* Backboards
- Spinal cord, 278 injuries of. *See* Head, neck and spinal injuries
- Splints, 237, 243–45, 278
- Spokesperson of facility, 84, 278
- Sprains, 235, 278
- Standard of care, 6, 278
- Standard precautions, 136, 278
- Standing victim with head, neck and spinal injuries, 256–57, 269–71
- Starting blocks, 29, 278
- Stations, 46–49 elevated, 47, 51 ground-level, 47, 50 return to, after emergency, 84 and rotation of lifeguard duties, 48–49, 50–51 roving, 47–48, 65, 277 at water slides, 60–61 at wave pools, 64
- Stings and bites, 227, 228–32 disease transmission in, 134, 279
- Stoma, 278 and mask-to-stoma ventilations, 169
- Stomach, air entering, during ventilations, 168
- Stool in pool water, 24, 58

- Stop button, emergency, 64, 76–77, 275
- Strain, 235, 278
- Streams and rivers, head neck, and spinal injuries in, 255
- Stress, 278  
in critical incident, 84–85, 274
- Stride jump entry for water rescue, 91, 103–4  
with mask and fins, 100
- Stroke, 220, 278
- Submerged victim, 93, 112–17, 278  
in cold water, 101  
in deep water, 93, 97–98, 116–17  
head splint technique for, 249, 260–61  
in shallow water, 93, 96–97, 112  
sightings and cross bearings for, 95–96
- Suctioning, 14, 180, 191–92, 278  
in vomiting, 168
- Sunburn, 229
- Surface dives, 93, 97, 113–15  
feet-first, 93, 97, 113–14  
head-first, 93, 97, 114–15
- Surveillance, 278  
of facility, 275  
of patrons, 33–51, 277  
zone of responsibility in, 44–46, 279
- Swimming ability  
color-coded wrist bands or swim caps on, 66  
testing of, 66, 67–68
- Swim tests, 66, 67–68
- Swim training, 5  
endurance in, 5  
intervals in, 5, 276
- T**
- Tachycardia, ventricular, 198–99, 279
- Teams, 9–10  
lifeguard team, 9–10, 276  
safety team, 9, 10, 73–76, 273
- Therapy pool rules and regulations, 29–30
- Thermocline, 22, 101, 278
- Throwable devices, 278  
personal flotation devices, 62, 63  
rescue bags, 96
- Throw bags, 96
- Thunderstorms, 25
- Tongue  
airway obstruction from, 178–79  
injuries of, 225
- Tooth injuries, 225–26
- Tornadoes, 26, 279
- Total coverage, 45, 46, 279
- Training, 8–9  
annual or preseason, 8  
on emergency action plan, 71  
with emergency medical services personnel, 80  
on fecal release incidents, 24  
in-service, 9, 71, 276  
on recreational water illnesses, 24  
on safety checks, 20  
on water quality, 22, 23  
on water rescue, 90
- Transdermal medication patches, AED use in, 200, 201, 212
- Transmission of disease, 133–40  
bloodborne pathogens  
standard in prevention of, 32, 273  
body substance isolation  
precautions in prevention of, 136, 273  
in direct contact, 134, 274  
in droplet inhalation, 134, 275  
in indirect contact, 134, 276  
personal protective equipment  
in prevention of, 14, 137–38  
risk of, 135  
standard precautions in, 136, 278  
vector-borne, 134, 279  
in water contamination, 24
- Trauma. *See* Injuries
- Two rescuers  
backboard method, 94, 118–19  
bag-valve-mask resuscitation, 165, 182–83  
CPR, 198, 208–11  
front-and-back carry method, 94, 121  
seat carry method, 142, 156–57
- U**
- Uncooperative patrons, 56
- Underwater hazards, 20
- Universal sign of choking, 170, 279
- University of North Carolina rescue reporting system, 86
- V**
- Vaccine for hepatitis B, 135, 136
- Vector-borne transmission of disease, 134, 279
- Ventilations, 144–45, 163–69, 181–83  
air entering stomach in, 168  
with bag-valve-mask resuscitators, 14, 164–65, 180, 182–83, 190  
breathing barriers for personal protection in, 137, 164–65  
in cycle with chest compressions, 144–45, 182, 183, 196–98  
in head, neck and spinal injuries, 168  
mask-to-nose, 168–69  
mask-to-stoma, 169  
in multiple rescuers, 203, 205, 206  
in one rescuer, 207  
with resuscitation mask. *See* Resuscitation masks  
in two rescuers, 182–83, 209–11  
in water, 102, 129
- Ventricular fibrillation, 198–99, 279
- Ventricular tachycardia, 198–99, 279
- Violent behavior, 56
- Viruses, 132–33  
HIV, 132–33, 135, 137, 273, 275  
personal protective equipment  
in exposure to, 137  
risk of transmission, 135  
vaccination against, 135, 136
- Vomiting, 24, 165, 168
- W**
- Walking assist, 94, 120, 156  
in land emergencies, 141
- Warming methods in cold-related emergencies, 234–35
- Water conditions, 21–23  
quality of water in, 22–23, 24  
scanning challenges in, 43
- Watercraft, 48, 95, 126–27
- Waterfront areas, 279  
missing person procedure in, 75  
rescue skills for, 94–102  
rules and regulations in, 28  
safety checks of, 17, 20–23
- Waterparks, 59–64, 279  
head, neck and spinal injuries in, 255  
missing person procedure in, 75  
rules and regulations in, 28
- Water quality, 22–23  
and recreational water illnesses, 24
- Water rescue, 87–130  
approach toward victim in, 91, 92, 107–10  
assists in, 91–92, 106  
in cold water, 101  
core objectives in, 90  
in deep water. *See* Deep water areas  
entry methods in, 90–91, 100, 103–5  
escapes in, 100, 128–29  
exit point in, 89  
general procedures in, 88–90  
in head, neck and spinal injuries, 248–56  
with mask and fins, 98–100  
of multiple victims, 93, 111  
removal victim from water in, 89, 93–94, 102, 118–21.  
*See also* Removal of victim from water  
with rescue board, 94–95, 122–26. *See also* Rescue boards  
in shallow water. *See* Shallow water areas  
sightings and cross bearings in, 95–96, 274, 278
- standards on, 90  
of submerged victim, 93, 112–17. *See also* Submerged victim  
ventilations in water during, 102, 129  
of victim at or near surface, 92, 107–10  
with watercraft, 95, 126–27  
in waterfront areas, 94–102
- Water slides. *See* Slides
- Wave pools, 64, 76–77
- Weather conditions, 25–27  
affecting indoor facilities, 26–27  
and changing water conditions, 21, 22  
and cold-related emergencies, 234–35  
and cold water rescues, 101  
and heat-related illnesses, 233–34  
scanning challenges in, 43  
young children in, 58
- Wet conditions, AED use in, 200
- Wheezing, 161, 279
- Whistle use, 54
- Winding river attractions, 61, 255
- Windy conditions, 26
- Work practice controls, 139, 279
- Wounds, 220–28, 279  
bleeding from, 221–22, 223.  
*See also* Bleeding closed, 221–22, 274  
embedded objects in, 226, 275  
open, 222–23, 276  
puncture, 222, 277
- X**
- Xiphoid process, 196, 279
- Y**
- Youth camps, 68–70, 75
- Z**
- Zone coverage, 45–46, 279  
in emergency, 78
- Zone of surveillance responsibility, 44–46, 279  
and emergencies outside of zone, 85–86





## Thank You for Participating in the American Red Cross Lifeguarding Program

Your path to becoming a great lifeguard starts with Red Cross training. The important skills you learn in this course will help you act with speed and confidence in emergency situations both in and out of the water. Your manual covers:

Water Rescue Skills • Surveillance and Recognition • First Aid • Breathing Emergencies • Cardiac Emergencies and CPR • AED • and More.

Red Cross Lifeguarding emphasizes teamwork and prevention to help patrons stay safe. Plus, convenient online refreshers supplement your in-service training to help keep your knowledge and skills sharp. Visit [redcross.org](http://redcross.org) to learn about this and other training programs.

**The Red Cross Lifeguarding program is approved by the American Red Cross Scientific Advisory Council, and reflects the latest evidence-based science from:**

- 2010 Consensus on Science for CPR and Emergency Cardiovascular Care (ECC).
- 2010 Guidelines for First Aid.
- 2011 United States Lifeguard Standards Coalition Report.

The American Red Cross Scientific Advisory Council is a panel of nationally recognized experts in emergency medicine, sports medicine, emergency medical services (EMS), emergency preparedness, disaster mobilization and other public health and safety fields. The Council helps assure that courses, training materials and products incorporate the latest scientific and technical information.

Each year the American Red Cross shelters, feeds and provides emotional support to victims of disasters and teaches lifesaving skills to more than 15 million people. The Red Cross supplies nearly half of the nation's blood, provides international humanitarian aid, supports military members and their families, teaches swimming and water safety to more than 2 million people and trains nearly 300,000 lifeguards.



Scan this code with your smartphone to access free skill refreshers, or visit [redcross.org/LGrefresher](http://redcross.org/LGrefresher).



Stock No. 655735

