Caring for Head, Neck and Spinal Injuries

Every year, approximately 12,000 spinal cord injuries are reported in the United States. Nearly 8 percent of these injuries occur during sports and recreation, some from head-first entries into shallow water.

Although most head, neck and spinal injuries occur during unsupervised activities, they do sometimes happen while a lifeguard is on duty. These injuries are rare, but when they do occur, they can result in lifelong disability or even death. Prompt and effective care is required.

As a professional lifeguard, you must be aware of the causes of head, neck and spinal injuries. You also must know how to recognize them and provide appropriate care.
CAUSES OF HEAD, NECK AND SPINAL INJURIES

Head, neck and spinal injuries rarely happen during supervised diving into deep water. In pools, head, neck and spinal injuries most often occur at the shallow end, in a corner or where the bottom slopes from shallow to deep water. They also occur when someone strikes a floating object, like an inner tube or person, while diving. Head, neck or spinal injuries also happen out of the water, for example, when a person trips or falls on a pool deck or in a locker room.

At lakes, rivers and oceans, head, neck and spinal injuries usually occur in areas where depths change with the tide or current. At beaches, these injuries happen mainly when someone plunges head-first into shallow water or a breaking wave. These injuries also result from collisions with an underwater hazard, such as a rock, tree stump or sandbar.

Head, neck or spinal injuries often are caused by high-impact/high-risk activities. In aquatic environments, examples of these activities include:

- Entering head-first into shallow water.
- Falling from greater than a standing height.
- Entering the water from a height, such as a diving board, water slide, an embankment, cliff or tower.
- Striking a submerged or floating object.
- Receiving a blow to the head.
- Colliding with another swimmer.
- Striking the water with high impact, such as falling while water skiing or surfing.

Signs and Symptoms

You should suspect a possible head, neck or spinal injury only if the activity was high-impact or high-risk and signs or symptoms of injury are present.

The signs and symptoms of possible head, neck or spinal injury include:

- Unusual bumps, bruises or depressions on the head, neck or back.
- Heavy external bleeding of the head, neck or back.
- Bruising of the head, especially around the eyes and behind the ears.
- Blood or other fluids in the ears or nose.
- Seizures.
- Changes in level of consciousness.
- Impaired breathing or vision.
- Nausea or vomiting.
- Partial or complete loss of movement of any body area.
- Loss of balance.
- Victim holds his or her head, neck or back.
- Behavior resembling intoxication.
- Severe pain or pressure in the head, neck or back.
- Back pain, weakness, tingling or loss of sensation in the hands, fingers, feet or toes.
- Persistent headache.
CARING FOR HEAD, NECK AND SPINAL INJURIES

For a victim of a suspected head, neck or spinal injury, your objective is to minimize movement of the head, neck and spine. You must use specific rescue techniques to stabilize and restrict motion of the victim’s head, neck and spine, regardless of whether the victim is on land or water. You must also be familiar with and train using your facility’s equipment. Skill sheets that describe the steps to care for head, neck and spinal injuries are located at the end of the chapter.

If the victim is in the water and is breathing, you, along with at least one assisting lifeguard, will immobilize him or her using a backboard equipped with straps and a head-immobilizer device. If the victim is not breathing, immediately remove the victim from the water using a technique, such as the two-person-removal-from-the-water, and provide resuscitative care. Whether on land or in the water, higher priority is given to airway management, giving ventilations or performing CPR than to spinal immobilization.

The care that you provide to a victim with an injury to the head, neck or spine depends on:

- The victim’s condition, including whether he or she is conscious and breathing.
- The location of the victim (shallow or deep water, at the surface of the water, submerged or not in the water).
- The availability of additional help, such as other lifeguards, bystanders, fire fighters, police or emergency medical services (EMS) personnel.
- The facility’s specific procedures.
- The air and water temperature.

Caring for Head, Neck and Spinal Injuries in the Water

If you suspect a head, neck or spinal injury and the victim is in the water, follow these general rescue procedures:

1. Activate the facility’s emergency action plan (EAP). Facilities may have a distinct signal to begin a suspected head, neck or spine injury rescue.
2. Safely enter the water. If the victim is near a pool wall or pier, minimize water movement by using a slide-in entry rather than a compact or stride jump. If you use a running entry, slow down before reaching the victim.
3. Perform a rescue providing in-line stabilization appropriate for the victim’s location and whether the victim is face-up or face-down.
4. Move the victim to safety. If in deep water, move to shallow water if possible.
5. Check for consciousness and breathing (Figure 11-1).
   - If the victim is breathing, proceed with the spinal backboarding procedure (See page 250).
   - If the victim is not breathing, immediately remove the victim from the water using a technique, such as the two-person-removal-from-the-water, and provide resuscitative care.
Do not delay removal from the water by strapping the victim onto the board or using the head immobilizer device.

6. Backboard the victim using the spinal backboarding procedure.
7. Remove the victim from the water.
8. Re-assess the victim’s condition and provide appropriate care. Additionally:
   o Minimize shock by keeping the victim from getting chilled or overheated.
   o If the victim vomits, tilt the backboard on one side to help clear the vomit from the victim’s mouth.

Manual In-line Stabilization

The head splint technique is used for performing manual in-line stabilization for victims in the water (Figure 11-2). You can use this technique when the victim is face-up or face-down; in shallow or deep water; and at, near or below the surface. The technique is performed in subtly different ways, depending on the victim’s location and position in the water. However, regardless of the variation used, your objective should remain the same—to get the victim into a face-up position while minimizing movement of the head, neck and spine.

Vary the technique in the following ways, based on the victim’s position in the water:

- If the victim is face-up, approach from behind the victim’s head.
- If the victim is face-down, approach from the victim’s side.
- If the victim is in shallow water, you do not need to use the rescue tube to support yourself.
- If the victim is at the surface in deep water, you may need the rescue tube to support yourself and the victim.
- If the victim is submerged, do not use the rescue tube when you are submerging and bringing the victim to the surface. Once at the surface, another lifeguard can place a rescue tube under your armpits to help support you and the victim.

The head splint technique uses the victim’s arms to help hold the victim’s head in line with the body. Avoid lifting or twisting the victim when performing this skill. Do not move the victim any more than necessary. Minimize water movement by moving the victim away from crowded areas and toward the calmest water possible. Keep the victim’s mouth and nose out of the water and minimize water splashing onto the victim’s face.

As soon as the victim is stabilized in the head splint and is face-up in the water, immediately check the victim for consciousness and breathing.

Fortunately, injuries to the head, neck or spine rarely occur in deep water. Should this occur, the victim often can be moved to shallow water. Lane lines or safety lines...
may need to be moved to clear a path to shallow water. If you cannot move the victim to shallow water, such as in a separate diving well, use the rescue tube under both armpits to help support yourself and the victim until the backboard arrives.

**Spinal Backboarding Procedure**

After stabilizing the victim’s head, neck and spine, you and at least one other lifeguard should place and secure the victim on a backboard. Using a backboard helps to immobilize the victim during the process of removing him or her from the water. A minimum of two lifeguards is needed to place and secure a victim on a backboard, but additional lifeguards or bystanders should also help, if available.

To place a victim on a backboard, submerge the board, position it under the victim and carefully raise it up to the victim’s body. You then secure the victim to the backboard with straps and a head immobilizer device. Throughout the spinal backboarding process, you or another lifeguard must maintain manual in-line stabilization of the victim’s head and neck. To aid in floatation of the backboard, rescue tubes can be placed under the board (Figure 11-3). Additional lifeguards also can assist in keeping the board afloat.
Communication between lifeguards is critical during the spinal backboarding procedure. Communication with the victim also is important. Let the victim know what you are doing and reassure him or her along the way. Tell the victim not to nod or shake his or her head, but instead to say “yes” or “no” in answer to your questions.

**Team Spinal Backboarding**

Spinal backboarding and removal from the water can be a challenge in deep or shallow water. Having other lifeguards work with you is helpful and may be necessary to ensure your safety as well as that of the victim. Working together as a team, other lifeguards can help by:

- Submerging and positioning the backboard under the victim.
- Supporting the rescuer at the head of the backboard in deep water (Figure 11-4, A).
- Supporting the backboard while the straps and head immobilizer are secured.
- Securing the straps or the head immobilizer device (Figure 11-4, B–C).
- Communicating with and reassuring the victim.
- Guiding the backboard as it is being removed from the water (Figure 11-4, D).
- Removing the backboard from the water (Figure 11-4, E).
ALTERNATE METHOD FOR MANUAL IN-LINE STABILIZATION TECHNIQUE—HEAD AND CHIN SUPPORT

When caring for victims with head, neck or spinal injuries in the water, special situations may require a modification to the in-line stabilization technique used, such as when a victim has one arm or little flexibility in the shoulders. The head and chin support can be used for face-down or face-up victims who are at or near the surface in shallow water at least 3 feet deep or for a face-up victim. Be aware of the following situations:

- Do not use the head and chin support for a face-down victim in water that is less than 3 feet deep. This technique requires you to submerge and roll under the victim while maintaining in-line stabilization. It is difficult to do this in water less than 3 feet deep without risking injury to yourself or the victim.

- Do not use the rescue tube for support when performing the head and chin support on a face-down victim in deep water. This impedes your ability to turn the victim over. However, once the victim is turned face-up, another lifeguard can place a rescue tube under your armpits to help support you and the victim.

To perform the head and chin support for a face-up or face-down victim at or near the surface:

1. Approach the victim from the side
2. With your body about shoulder depth in the water, place one forearm along the length of the victim’s breastbone and the other forearm along the victim’s spine.
3. Use your hands to gently hold the victim’s head and neck in line with the body. Place one hand on the victim’s lower jaw and the other hand on the back of the lower head.
4. Squeeze your forearms together, clamping the victim’s chest and back. Continue to support the victim’s head and neck.
   - If the victim is face-down, you must turn him or her face-up. Slowly move the victim forward to help lift the victim’s legs. Turn the victim toward you while submerging.
   - Roll under the victim while turning the victim over. Avoid twisting the victim’s body. The victim should be face-up as you surface on the other side.
   - Check for consciousness and breathing.
If the victim is not breathing, immediately remove the victim from the water using a technique, such as the two-person-removal-from-the-water. Do not delay removal from the water by strapping the victim onto the backboard or using the head immobilizer device.

If the victim is breathing, hold the victim face-up in the water and move toward safety until the backboard arrives. In deep water, move the victim to shallow water if possible.

**Spinal Backboarding Procedure Using the Head and Chin Support**

When using the head and chin support as the stabilization technique, modify the backboarding procedure in the following ways:

1. While an additional rescuer raises the backboard into place, the primary rescuer carefully removes his or her arm from beneath the victim and places it under the backboard while the other hand and arm remain on the victim’s chin and chest.

2. The additional rescuer moves to the victim’s head and places the rescue tube under the head of the backboard to aid in floatation of the board.

3. The additional rescuer then supports the backboard with his or her forearms and stabilizes the victim’s head by placing his or her hands along side of the victim’s head. The primary rescuer can now release.

Use the head and chin support as a stabilization technique when performing spinal backboarding in deep water, but modify the backboarding procedure.
Providing care after the victim has been removed from the water. Additional lifeguards should be able to arrive at the scene, identify what assistance is needed and begin helping.

Removal from the Water

Once the victim is secured onto the backboard, you should remove the victim from the water. Your technique will vary depending on the characteristics of your exit point (e.g., shallow or deep water, speed slide or sloping waterfront entry).

After the victim is out of the water, assess his or her condition and provide the appropriate care. Place a towel or blanket on the victim to keep him or her warm, if needed.

Use the following skills to secure a victim suspected of having a spinal injury to a backboard and remove him or her from the water:

- Spinal backboarding procedures—shallow water
- Spinal backboarding procedures—deep water
- Spinal injury removal from the water on a backboard

Special Situations

In-line stabilization and backboarding can be more difficult to perform in facilities that have extremely shallow water, moving water or confined spaces. Caring for a victim of a head, neck or spinal injury in these situations requires modification of the techniques for in-line stabilization and removal from the water.

During orientation and in-service trainings, your facility’s management should provide information and skills practice for in-line stabilization and backboarding procedures used at the facility for its specific attractions and environments. These trainings should include emergency shut-off procedures to stop water flow and movement.

Removal from Extremely Shallow Water

Many facilities have extremely shallow water, such as zero-depth pools, wave pools and sloping beaches. To remove a victim from a zero-depth or sloping entry, have sufficient lifeguards on each side of the backboard to support the victim’s weight. After the victim is secured to the backboard:

- Carefully lift up the backboard and victim using proper lifting techniques to prevent injuring yourself.
- Remove the backboard and victim from the water by slowly walking out. Keep the board as level as possible during the removal.
- Gently lower the backboard and the victim to the ground once out of the water using proper lifting techniques to prevent injuring yourself.

Moving Water

You may need to modify the way you care for a person with a head, neck or spinal injury if waves or currents are moving the water. In water with waves, move the victim to calmer water, if possible. At a waterfront, a pier or raft may break or block the waves. If there is no barrier from the waves, have other rescuers form a “wall” with their bodies to block the waves. At a wave pool, stop the waves by pushing the emergency stop button. Remember, even though the button has been pushed, residual wave action will continue for a short time.
Rivers, Streams and Winding River Attractions

A special problem in rivers, streams and winding rivers at waterparks is that the current can pull or move the victim. At waterparks, the facility’s EAP may include signaling another lifeguard to stop the flow of water in a winding river by pushing the emergency stop button. In all cases:

- Ask other lifeguards or patrons for help in keeping objects and people from floating into the rescuer while he or she is supporting the victim.
- Do not let the current press sideways on the victim or force the victim into a wall. This would twist the victim’s body. Keep the victim’s head pointed upstream into the current (Figure 11-5). This position also reduces the splashing of water on the victim’s face.
- Once the in-line stabilization technique is performed and the victim is turned face-up, slowly turn the victim so that the current pulls his or her legs around to point downstream.
- Place the victim on a backboard by following the facility’s spinal backboarding procedures.

Catch Pools

The water in a catch pool moves with more force than in a winding river and can make it difficult to hold a victim still.

- If a person is suspected of having a head, neck or spinal injury in a catch pool, immediately signal other lifeguards to stop sending riders.
- If possible, someone should stop the flow of water by pushing the emergency stop button.
- Once in-line stabilization is achieved and the victim is turned face-up, move the victim to the calmest water in the catch pool if water is still flowing (Figure 11-6). If there is only one slide, the calmest water is usually at the
center of the catch pool. If several slides empty into the same catch pool, calmer water usually is between two slides (Figure 11-7, A–B).

- Place the victim on a backboard following the facility's spinal backboarding procedures.

**Speed Slides**

A head, neck or spinal injury may happen on a speed slide if the patron twists or turns his or her body the wrong way, strikes his or her head on the side of the slide or sits up and tumbles down off the slide. The narrow space of a speed slide is problematic for rescuing a victim with a head, neck or spinal injury. Backboarding can be a challenge because the water in the slide is only 2 or 3 inches deep and does not help to support the victim.

**Caring for Head, Neck and Spinal Injuries on Land**

If you suspect that a victim on land has a head, neck or spinal injury, your goal is the same as for a victim in the water: minimize movement of the head, neck and spine. Activate the facility’s EAP and follow the general procedures for injury or sudden illness on land:

- Size-up the scene.
- Perform a primary assessment.
- Summon EMS personnel.
- Perform a secondary assessment.
- Provide the appropriate care.

Use appropriate personal protective equipment, such as disposable gloves and breathing barriers.

Approach the victim from the front so that he or she can see you without turning the head. Tell the victim not to nod or shake his or her head, but instead respond verbally to your questions, such as by saying “yes” or “no.”

**Caring for a Non-Standing Victim**

If you suspect a victim on land has a head, neck or spinal injury, have the victim remain in the position in which he or she was found until EMS personnel assume control (Figure 11-8). Gently support the head in the position in which it was found. Do not attempt to align the head and neck, unless you cannot maintain an open airway. Gently position the victim’s head in line with the body only if you cannot maintain an open airway.

**Caring for a Standing Victim**

If you encounter a patron who is standing but has a suspected head, neck or spinal injury, secure the victim to the backboard while he or she remains standing.
and slowly lower him or her to the ground (Figure 11-9). Follow the steps on the skill sheet, Caring for a Standing Victim Who Has a Suspected Head, Neck or Spinal Injury on Land.

If EMS personnel are available within a few minutes and the victim’s safety is not compromised, you may maintain manual stabilization with the victim standing. Do not have the person sit or lie down. Minimize movement of the victim’s head by placing your hands on both sides of the victim’s head (Figure 11-10).

If the victim’s condition becomes unstable (e.g., the victim complains of dizziness, has a potential life-threatening condition or begins to lose consciousness), slowly lower the victim to the ground with the assistance of other lifeguards. Try to maintain manual stabilization while the victim is being lowered.

**WRAP-UP**

Although they are rare, head, neck and spinal injuries do occur at aquatic facilities. They can cause life-long disability or even death. Prompt, effective care is needed. As a professional lifeguard, you must be able to recognize and care for victims with head, neck or spinal injuries. To decide whether an injury could be serious, consider both its cause and the signs and symptoms. If you suspect that a victim in the water has a head, neck or spinal injury, make sure to summon EMS personnel immediately. Minimize movement by using in-line stabilization. Secure the victim to a backboard to restrict motion of the head, neck and spine. When the victim is out of the water, provide the appropriate care until EMS personnel arrive and assume control of the victim’s care.
HEAD SPLINT—FACE-UP VICTIM AT OR NEAR THE SURFACE

1. Approach the victim’s head from behind, or stand behind the victim’s head.
   - In shallow water, lower your body so that the water level is at your neck.
   - In deep water, use the rescue tube under both of your arms for support.

2. Grasp the victim’s arms midway between his or her shoulder and elbow. Grasp the victim’s right arm with your right hand and the victim’s left arm with your left hand. Gently move the victim’s arms up alongside the head. Position yourself to the victim’s side while trapping the victim’s head with his or her arms.

3. Slowly and carefully squeeze the victim’s arms against his or her head to help hold the head in line with the body. Do not move the victim any more than necessary.

4. Position the victim’s head close to the crook of your arm, with the head in line with the body.

5. Check for consciousness and breathing.
   - If the victim is not breathing, immediately remove the victim from the water using a technique, such as the two-person-removal-from-the-water, and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.
   - If the victim is breathing, hold the victim with the head in line with the body and move toward safety until the backboard arrives. In deep water, move the victim to shallow water, if possible.

6. Continuously monitor for consciousness and breathing. If at any time the victim stops breathing, immediately remove the victim from the water then provide appropriate care.
HEAD SPLINT—FACE-DOWN VICTIM AT OR NEAR THE SURFACE

1. Approach the victim from the side.
   - In deep water, use the rescue tube under both of your arms for support.

2. Grasp the victim’s arms midway between the shoulder and elbow. Grasp the victim’s right arm with your right hand and the victim’s left arm with your left hand. Gently move the victim’s arms up alongside the head.

3. Squeeze the victim’s arms against his or her head to help hold the head in line with the body.

4. Glide the victim slowly forward.
   - In shallow water, lower your body to shoulder depth before gliding the victim forward.
   - Continue moving slowly and turn the victim until he or she is face-up. To do this, push the victim’s arm that is closest to you under the water while pulling the victim’s other arm across the surface toward you.

5. Position the victim’s head in the crook of your arm, with the head in line with the body.

Continued on Next Page
HEAD SPLINT—FACE-DOWN VICTIM AT OR NEAR THE SURFACE  
continued

6 Check for consciousness and breathing.
   - If the victim is not breathing, immediately remove the victim from the water using a technique, such as the two-person-removal-from-the-water, and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.
   - If the victim is breathing, hold the victim with the head in line with the body and move toward safety until the backboard arrives. In deep water, move the victim to shallow water, if possible.

7 Continuously monitor for consciousness and breathing. If at any time the victim stops breathing, immediately remove the victim from the water then provide appropriate care.

HEAD SPLINT—SUBMERGED VICTIM

1 Approach the victim from the side. In deep water, release the rescue tube if the victim is more than an arm’s reach beneath the surface.

2 Grasp the victim’s arms midway between the shoulder and elbow. Grasp the victim’s right arm with your right hand and the victim’s left arm with your left hand. Gently move the victim’s arms up alongside the head.

3 Squeeze the victim’s arms against his or her head to help hold the head in line with the body.

4 Turn the victim face-up while bringing the victim to the surface at an angle. To turn the victim face-up, push the victim’s arm that is closest to you down and away from you while pulling the victim’s other arm across the surface toward you. The victim should be face-up just before reaching the surface or at the surface.
Position the victim’s head close to the crook of your arm with the head in line with the body. Another lifeguard can place a rescue tube under your armpits to help support you and the victim.

Check for consciousness and breathing.

- If the victim is not breathing, immediately remove the victim from the water using a technique, such as the two-person-removal-from-the-water, and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.
- If the victim is breathing, hold the victim with the head in line with the body and move toward safety until the backboard arrives. In deep water, move the victim to shallow water, if possible.

Continuously monitor for consciousness and breathing. If at any time the victim stops breathing, immediately remove the victim from the water then provide appropriate care.

**Note:** If the victim is submerged but face-up, approach the victim from behind and follow the same steps in the skill sheet, Head Splint—Face-Up Victim at or Near the Surface while you bring the victim to the surface.

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**HEAD SPLINT—FACE-DOWN IN EXTREMELY SHALLOW WATER**

1. Approach the victim from the side. Grasp the victim’s right arm with your right hand and the victim’s left arm with your left hand, trapping the victim’s head between his or her arms.

2. After the victim’s head is trapped between his or her arms, begin to roll the victim toward you.

3. While rolling the victim, step from the victim’s side toward the victim’s head and begin to turn the victim face-up.
Lower your arm on the victim’s side that is closest to you so that the victim’s arms go over the top of your arm as you step toward the victim’s head. Maintain arm pressure against the victim’s head, since your hand rotates during this maneuver. You are now positioned above and behind the victim’s head.

Check for consciousness and breathing.
- If the victim is not breathing, immediately remove the victim from the water and give the appropriate care.
- If the victim is breathing, hold the victim in this position. Place a towel or blanket on the victim to keep him or her from getting chilled.

Continuously monitor for consciousness and breathing. If at any time the victim stops breathing, immediately remove the victim from the water then provide appropriate care.

Note: If you are unable to keep the victim from getting chilled and there are enough assisting lifeguards, follow the care steps for skill sheet, Spinal Backboarding Procedure and Removal from Water—Speed Slide.

The first lifeguard (primary rescuer) provides in-line stabilization until another lifeguard arrives with the backboard.

Note: If the victim is not breathing, immediately remove the victim from the water using the two-person-removal-from-the-water technique and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.
The assisting lifeguard removes the head-immobilizer device, enters the water, submerges the backboard and positions the board under the victim so that it extends slightly beyond the victim’s head. The victim’s head should be centered on the backboard’s head space.

While an assisting lifeguard raises the backboard into place, the primary rescuer moves the elbow that is under the victim toward the top of the backboard while continuing to apply pressure on both of the victim’s arms, using the victim’s arms as a splint.

Once the backboard is in place, an assisting lifeguard then stabilizes the victim by placing one hand and arm on the victim’s chin and chest, the other hand and arm under the backboard. The primary rescuer then releases his or her grip on the victim’s arms.

The primary rescuer lowers the victim’s arms, moves behind the victim’s head and places the rescue tube under the head of the backboard to aid in floatation of the board.

The primary rescuer balances the backboard 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.

Continued on Next Page
An assisting lifeguard secures the victim on the backboard with a minimum of three straps: one each across the victim’s chest, hips and thighs. Secure the straps in the following order:

- Strap high across the chest and under the victim’s armpits. This helps prevent the victim from sliding on the backboard during the removal.
- Strap across the hips with the victim’s arms and hands secured under the straps.
- Strap across the thighs.
- Recheck straps to be sure that they are secure.

The rescuers secure the victim’s head to the backboard using a head immobilizer and a strap across the victim’s forehead.

If not done already, bring the victim to the side.
**SPINAL BACKBOARDING PROCEDURE—DEEP WATER**

**Note:** *If the victim is not breathing, immediately remove the victim from the water using the two-person removal-from-the-water technique and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.*

1. The first lifeguard (primary rescuer) provides in-line stabilization. If the victim is face-down, the primary rescuer turns the victim into a face-up position. If necessary, an assisting lifeguard retrieves the primary rescuer’s rescue tube and inserts it under the primary rescuer’s armpits.

2. The primary rescuer moves the victim to the side, if possible, toward a corner. An assisting lifeguard places a rescue tube under the victim’s knees to raise the legs. This makes placing the backboard under the victim easier.

3. An assisting lifeguard places the backboard under the victim while the primary rescuer maintains stabilization.

4. As an assisting lifeguard raises the backboard into place, the primary rescuer moves the elbow that is under the victim toward the top of the backboard while continuing to apply pressure on both of the victim’s arms. An assisting lifeguard stabilizes the victim with one hand and arm on the victim’s chin and chest, and the other hand and arm under the backboard.

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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.

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.
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.

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.

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.

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.

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.
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.

*Continued on Next Page*
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.

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.

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.
**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 flotation 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 floatation device (PFD) – Coast Guard-approved life jacket, buoyancy vest, wearable floatation aid, throwable device or other special-use floatation 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.
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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-sack carry, 142, 157
two-person seat carry, 142, 157
Chest compressions
in airway obstruction, 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
Gramps, in heat-related illness, 233, 276
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
ripped 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
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, 236, 237
Disorientation, in acute reactions, 177, 274
Diving area rules and regulations, 12
Dives, 93, 97, 113–15
Dives, 93, 97, 113–14
head-first, 93, 97, 114–15
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
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
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
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
Drug methods
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
indicators 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
in seizures, 219
in stroke, 220
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
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
indicators 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
in seizures, 219
in stroke, 220
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-line stabilization of head and neck, 276
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
tlifestyle 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
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, 276
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, 202
Pack-strap carry, 142, 157
Paralysis, 53, 277
Passive drowning victim, 38–40
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
Patrol 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 uncooparative 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
INDEX
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 splash technique for, 249, 260–61
in shallow water, 93, 96–97, 112
sightings and cross bearings for, 95–96
Suctioning, 14, 180, 191–92, 276
in vomiting, 168
Sunburn, 229
Surface dives, 93, 97, 113–15
feet-first, 93, 97, 113–14
deft-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, 96
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
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, 185, 192–93
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, 22
and cold-related emergencies, 234–35
and cold water rescues, 101
and heat-related illnesses, 248–56
and cold water, 101
and cold-related emergencies, 234–35
scanning challenges in, 43
young children in, 58
Watercraft, 48, 95, 126–27
Water conditions, 21, 22
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
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
Wheeling, 229
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
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