



# Aquatic Consulting Services

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## Pool Tip #41: Pool Rescue – Safety Equipment

Certain items of pool rescue, safety and first-aid equipment must be available for emergency use at public pools. Equipment rescues are recommended over direct body contact rescues for safety reasons. If it is necessary to enter the water to make a swimming rescue, a rescuer should always keep the equipment between himself, or herself, and the victim.

Most rescue equipment needs very little maintenance, but the manufacturer's recommendations for care and cleaning should be followed. The equipment should be inspected daily for wear or breakage, and to make sure it's in good repair. The equipment should not be used for play, or for purposes for which it was not designed or intended. All rescue equipment should be stored so it's immediately accessible and available for use in an emergency.

### Safety Equipment Found at Most Pools

- Ring buoys
- Rescue tubes
- Shepherd's crooks
- Spine board
- Straps
- Head immobilizer
- Lifeguard chairs
- First-aid kit
- Biohazard kit
- Oxygen
- AED
- Emergency telephone
- Fire extinguishers

### Rescue Tubes

Rescue tubes are made of flexible ensolite foam covered with a vinyl skin, usually in red, yellow or international orange. The tubes measure approximately 6 by 3 inches thick, by 40 to 48 inches in length. A polypropylene line or webbed material

towline and nylon shoulder strap are attached to the tube at one end. On some tubes, brass or plastic fittings or hooks are attached to the end of the tube opposite the towline so that the tube can be secured around a victim or rescuer, or thrown like a ring buoy. Rescue tubes are very versatile and several methods can be used to rescue a victim using a rescue tube. A rescue tube can also be used to retrieve a submerged victim from the bottom of the pool.

## **Ring Buoys**

Ring buoys are buoyant 17 to 24 inch diameter donut-shaped floats, usually white or international orange in color, and constructed of foam or other materials that will not rot or become waterlogged. They are sometimes improperly referred to as "lifesavers". A floating polypropylene line, 3/8 to 1/2 inches thick, and of a length at least equal to half the width of the pool at its widest point should be attached to the ring buoy. The line should be neatly coiled and ready for immediate use in an emergency. Ring buoys are only effective when properly and accurately thrown at a conscious, distressed victim who is able to reach for and hold on to the ring while being pulled a short distance to safety.

To correctly throw a ring buoy, loosely hold the coiled heaving line in your left (or non dominant) hand. Place your left foot forward, and over the bitter (loose) end of the heaving line. Grasp the ring buoy in your right (or dominant) hand. Use an underhand throwing motion to toss the ring buoy in a straight line past the victim. Let the heaving line uncoil as you let go of the ring buoy. Pull the line until the ring buoy is within the victim's grasp. If you miss the victim or throw wildly off course, quickly retrieve the line and throw again taking better aim and releasing at the proper time. Using a secure or locking grip, pull the victim toward you to safety.

## **Extension Poles & Shepherd's Crooks**

Extension poles are usually 12 to 16 feet in length, 1-1/4 inch in diameter, and made of anodized aluminum or fiberglass. The rubber tipped pole is used to extend the rescuer's reach to a struggling, distressed (but not drowning) victim.

Aim the extension pole down into the water and toward the victim's chest. Make sure your stance is wide and your center of gravity is low over the deck so the victim doesn't accidentally pull you into the water when he grabs onto the pole. Use an arm over arm motion on the pole to pull the victim the short distance to the side of the pool and safety.

An extension pole can be made into a shepherd's crook by adding a detachable, blunt ended or rounded hook at one end. The crook is used to grasp a conscious or an unconscious victim floating on or below the surface of the water. Extend the pole attached to the shepherd's crook in the same way you would extend an extension pole. Retrieve the victim by carefully wrapping the hook around the victim's upper body. Use an arm over arm motion on the pole to pull the victim to safety. Be careful not to further injure an unconscious victim by pulling him into the pool wall.

## **Backboard**

A spineboard constructed of coated marine plywood, lightweight plastic with a foam core, or aluminum should be available at each facility. The board should be at least six feet in length, and at least eighteen inches wide. Holes should be spaced every few inches along the length of both sides of the board in order to provide handholds and a place to secure restraining straps. Runners should be attached to, and run the length of the bottom of the board to make sliding the victim out of the pool easier and smoother and save the rescuers' fingers when placing the weighted board down on the deck.

Rigid cervical collars in the full range of sizes from "thick neck" to "pediatric" should be available if recommended by the local EMS authority and rescuers must be trained and practiced in their use. A head immobilizer made of thick foam with Velcro attachments and straps is used to help prevent movement of the victim's head and cervical spinal column while secured to the board.

A minimum of six straps for securing victim's body to the board with Velcro attachments or quick release plastic or stainless buckles should be inspected for wear, untangled and stored in a way so that they are ready to use when needed.

## **First Aid Kit**

A standard cabinet-type 24-unit first aid kit should be located in the pool area. Or, if lifeguards or attendants are not present at the pool, a sign should be posted directing guests to the location of the first aid kit.

Contents of the first aid kit should be checked daily to make sure the kit is well stocked. Supplies in the kit should be arranged so that the desired item can be found quickly and without handling and contaminating unneeded items.

Biohazard kits, supplemental oxygen, and automatic external defibrillators should also be available.

Federal regulations require that pools have a designated first aid room on the premises. The room should be kept exceptionally clean, be well lit and ventilated, and provide privacy for the victim. The first aid station should be large enough to permit unrestricted movement of both the victim and first aiders, while holding a cot, blankets, small table, two chairs, biohazard bags, sharps container, sink, soap, and first aid supplies. Activities conducted in the room must be permitted by OSHA CFR 29 1910.1030 (no eating, drinking, inserting contacts, applying lip gloss...)

## **Lifeguard Chairs**

Lifeguard chairs are usually elevated over the pool deck to enable a lifeguard stationed in the chair to see a larger area of the pool than possible from deck level. Guarding from an elevated position helps eliminate "blind spots" and permits the guard to better see below the surface of the water.

Guard chairs can be stationary or portable. Portable guard chairs allow guards the convenience of moving the chair to an area of the pool needing more supervision, and out of the distracting rays of the sun or glare.

Select guard chairs that comply with OSHA elevated platform requirements as described in 29 CFR 1910.23. The chairs should be ergonomically designed to help keep the guard alert, but comfortable. Select stands with wide bases so the lifeguard can guard from a standing as well as sitting position, and does not have to swing out over the deck to get into the chair.

Ladder bolts should be checked regularly for wear and to make sure the treads are secure. A means of attaching umbrellas or other devices to protect guards from the sun should be available. A shelf or hooks should be attached to the stand for securing rescue equipment, but should be located in a way that they do not block the guard's view or become a hazard in an emergency.

## **Fire Extinguishers**

BC fire extinguishers should be available on the pool premises and in the pool mechanical room. However, never use the fire extinguisher to attempt to put out pool chemical fires -- chemicals in fire extinguishers may only make things worse.

Even using water to put out a small pool chemical fire is dangerous, because of the fumes. In case of a pool chemical fire, call the fire department at once. Trained professionals wearing appropriate protective gear should deal with the fire before it spreads or gets out of control.

Inspect fire extinguishers on a yearly basis, and always recharge them immediately after use.

## **Automatic External Defibrillators**

Automatic External Defibrillators (AEDs) analyze heart rhythms and detect ventricular fibrillations, and ventricular tachycardia and will advise and deliver three stacked shocks. An AED is a class II medical device and is always used with supervision of a medical doctor. AEDs follow cardiac protocol from the American Heart Association.

There are 450,000 deaths a year from sudden cardiac arrest, and 2/3 occur outside of hospitals. The national survival rate with CPR alone is 1-5%. Statistics show a 33% - 74% success rate if an AED is there within 3 – 5 minutes.

The goal is to get AEDS in the hands of public. The Cardiac Arrest Survival Act, placed AEDs in federal buildings and expanded Good Sam laws. Good Samaritan laws vary, but in most cases you must have a prescription from a medical director in order to purchase and use an AED. There is a new Pennsylvania court case that says you should have an AED anywhere there is a foreseeable need. Right now less than 50% of private ambulances carry AEDs, less than 15% of fire service vehicles carry AEDs, and 2% of police cars carry AEDs.

Tests have shown that it is easier to use AEDs than to do CPR. A test with 6<sup>th</sup> graders showed they could follow directions and properly use an AED only 20 seconds slower than trained emergency personnel.

AEDs are “pretty much failsafe”. The FDA standard requires that you use an AED only on an unconscious, non breathing, pulse less, victim. AHA protocol does not recommend that you use AEDs for monitoring on a conscious victim in cardiac tachycardia, but some new models do have monitoring screens to safely monitor heart rhythm. You may have to temporarily stop CPR to shave the chest hair of someone who is really hairy. A razor and extra pads are included with most AEDs. With some AED models, it is not recommended that you attempt to defibrillate someone in a moving vehicle or on a boat.

Ellis & Associates, YMCA, and the American Red Cross and Starguard all are recommending, and some agencies are mandating, AEDs at their aquatic facilities. Training is readily available. Most CPR instructors can now teach use of AEDs. Prices are going down now that there are more manufacturers. Average cost is around \$3,000, but some models now sell for under \$2,000.

It is recommended that AEDs be stored in an alarmed wall case, which can be wired into 911. Audible alarms and strobe lights which can't be turned off without a key can be added for extra security.

There are a few special precautions for use of AEDs in an aquatic environment. Since electricity and water don't mix, rescuers should be reminded to get the victim out of the water, wipe down the victim's chest, and place them on a dry deck on a backboard before defibrillating.

## **Emergency Telephones**

To avoid delays in obtaining assistance, install a special emergency telephone on the pool deck. Signage instructing members or guests on how to obtain assistance in an emergency should be developed and posted.

Emergency phone numbers should be posted in close proximity to the phone. Directions to the facility and other pertinent information to be conveyed to the EMS operator should be attached or posted on the phone itself.