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Standard for Technical Rescue

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RISK MANAGEMENT: Standard for Technical Rescue*

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The National Fire Protection Association (NFPA) establishes standards for the Fire and Rescue industry. In February 2004, they published NFPA 1670: Standard on Operations and Training for Technical Search and Rescue Incidents. The purpose of this standard was to minimize threats to rescuers while conducting operations at technical search and rescue (SAR) incidents, and the standard deals specifically with identifying

and establishing levels of functional capability for conducting technical rescue operations safely and effectively.

Lifesaving Resources, LLC advocates the need to conduct a Threat Assessment of the aquatics facility and the implementation of these same principles within the Lifeguard and Aquatic Recreation Sector as follows:

The Authority Having Jurisdiction (AHJ) needs to (A) assess the technical rescue hazard within the facility/system; (B) identify the level of operational capability required; and (C) establish operational criteria.

In the aquatics setting, the AHJ might be the beach patrol captain, aquatics facility manager, or Parks and Recreation Director or his/her designee. As a responder to technical rescue incidents, the AHJ needs to determine the level of response the authority is compelled to provide. And, the AHJ must then plan for it, train for it, and allocate the necessary resources to manage the appropriate response at that level. The AHJ must conduct a threat assessment within its community and jurisdiction to assess the needs of the community and prepare its lifeguard personnel to the appropriate level of operational capability.

Again, in the aquatics setting, the AHJ might make a determination regarding the need for oxygen administration equipment and training, AEDs, as well as levels of training such as First Responder certification for lifeguards, rather than just First Aid training. The AHJ should establish the levels of operational capability needed based on hazard identification, risk assessment, training level of personnel, and availability of internal and external resources. This standard also advocates the establishment of written Standard Operating Procedures (SOPs) consistent with the level of operational capability to ensure that technical rescue operations are performed in a manner that minimizes threats to rescuers and others and provides the highest level of patient care possible. Once the appropriate level of operational capability has been determined, the AHJ must then provide for training in the responsibilities that are commensurate with the operational capability of the organization, and provide for the continuing education necessary to maintain all requirements of the organization's identified level of operational capability.

In order to meet the organization's identified level of operational capability, in addition to developing SOPs and providing necessary training for its personnel, the AHJ must ensure that equipment commensurate with the respective operational capabilities for operations at technical SAR incidents and training exercises is provided.

If lifeguards are trained in CPR and AED for the Professional Rescuer, then it would be negligent not to provide them with the equipment used within those training programs, namely AEDs and Bag-Valve-Mask Resuscitators, among other things. Drowning is a hypoxic event. The only effective way to treat hypoxia in a victim of respiratory and/or cardiac distress or arrest while waiting for the arrival of EMS personnel is to provide positive pressure ventilation (PPV) using a personal resuscitation mask or an appropriately sized bag-valve-mask (BVM) resuscitator along with supplemental oxygen administration. While the use of a personal resuscitation mask provides for the administration of 16 percent oxygen from atmospheric air, the use of a bag-valve-mask will provide the patient with 21 percent oxygen from atmospheric air. And, by attaching an oxygen tank and regulator flowing oxygen at 15 liters per minute, the rescuer will then be providing the patient with 100 percent oxygen.

The EMS community is fully aware that approximately 75 percent of cardiac arrest patients will vomit during the administration of CPR. However, approximately 98 percent of cardiac arrest patients from submersion incidents will vomit during the administration of CPR. The only effective way to manage a cardiac arrest patient with a compromised airway is to use suction to maintain the patient's airway. Manual hand-held

suction devices are relatively inexpensive and easy to use. The critical components of suction use is the sizing and insertion of the suction catheter and the amount of time the rescuer can suction the patient. The rescuer simply measures the distance from the corner of the patient's mouth to the patient's earlobe. That represents the size of the catheter to be placed in the patient's mouth. With the suction catheter inserted, the patient is then suctioned for a maximum of 15 seconds to remove fluids and other secretions from the patient's airway.

APPLICATION

The following are principles which Lifesaving Resources Inc. considers to be the Standard of Care for the Lifeguard and Aquatic Recreation Sector in the prevention, recognition, and management of drowning and aquatic injuries:

Standard Operating Procedures (SOPs): Each facility or system must develop a comprehensive SOP Manual that details the responsibilities and duties of the lifeguard personnel. Each lifeguard should receive his/her own copy and should sign off as having received the manual and agree to abide by these SOPs. This manual must be updated regularly. We recommend numbering each SOP and placing the manual in a 3-ring binder so that individual SOPs can be revised and new SOPs added easily.

Emergency Action Plans (EAPs): EAPs are actions that need to be implemented to prevent an incident from escalating. A report of a missing person, especially a child, should include, among other actions, the shutting down/closing of all entrances and exits, including the parking lot, to prevent anyone from leaving the facility, as well as from anyone entering the facility so as not to compromise the emergency setting. During the threat of a thunder and lightning storm, the EAP would be to evacuate everyone from the water and shower room and encourage them to stay indoors or inside a vehicle. During the threat of fire, the EAP would be to evacuate the facility. In all cases, accountability needs to be maintained, and the appropriate call to 911 must be made. The EAPs should be in writing and included within the SOP Manual.

Emergency Response Plans (ERPs): An ERP details specifically how the facility will respond to specific emergency incidents and directs the lifeguards on the steps that need to be followed in the management of the incident. ERPs must be developed for every conceivable type of incident and should be drilled regularly. The ERPs should be in writing and should be included within the SOP Manual. Emergency Response Drills should be conducted regularly to assess the lifeguards' ability recognize the incident or potential for one and their ability to adhere to the established ERPs. Local Fire, Rescue, EMS, and Law Enforcement agencies should have the opportunity to review the facility's ERPs and can participate in these drills.

Threat Assessment & HRD Factors: The Authority Having Jurisdiction (AHJ) must conduct a threat assessment of his/her facility to determine the physical hazards that exist, and the activities that patrons/guests might engage in that would place them at a heightened risk. Hazards need to be corrected or removed, or appropriate warnings must be created if these hazards cannot be mitigated. If patrons are engaged in activities that place them at risk, those risks must either be prohibited or safeguarded. The combination of hazard (H) and risk (R) constitutes a danger (D). It is the responsibility of the AHJ to eliminate the danger by mitigating the hazards and risks.

Pre- and In-Service Training Programs: Lifeguard personnel must not just be certified as having completed an appropriate lifeguard, first aid, and CPR program, but they must be qualified to work at any one specific facility. The only way to qualify personnel is through site-specific pre-service and in-service training programs. These programs must be well-planned and documented and must include surveillance protocols for use at the facility; conclusions made after the conduct of the threat assessment; use of facility-specific rescue and safety equipment; SOPs; EAPs; and ERPs.

PRM Factors: The primary role of the aquatic facility's manager is to prevent (P) incidents; to recognize (R) incidents, as well as their potential; and to manage (M) incidents, as well as their potential. All operational responsibilities dealing with public safety should be directed at these goals.

Facility Use Guidelines (FUG): Guidelines must be established for visiting groups, and even parents regarding supervisory and accountability responsibilities. If day care or camp groups use the facility, the counselors and staff of those groups should be expected to maintain absolute supervision and accountability of the children within their charge. The facility lifeguards should supplement, not replace, that level of supervision and accountability. Parents must supervise and maintain accountability of their own children. FUGs should include the provision that whenever weak or non-swimmers are in the water, adult supervision must be within arm's reach at all times. FUGs can also include the use of Personal Flotation Devices (PFDs) by weak or non-swimmers.

EEC Factors: Rules and regulations need to be established for every facility. These rules and regulations should be well thought out and should be appropriately posted. Lifeguard personnel should be knowledgeable of these rules and regulations, including the rationale for them, and methods by which they can enforce them. Every facility needs to establish (E) rules and regulations; they need to enforce (E) the rules and regulations; and there need to be consequences (C) when these rules and regulations are breached, otherwise the patrons and guests will continue to breach them.

Management of Hypoxia: A submersion incident is a hypoxic event (lack of oxygen to the brain, vital organs, and tissues of the body). The only way to adequately and effectively treat hypoxia is with 100 percent oxygen. Therefore, every aquatics facility should have appropriate positive pressure ventilation (PPV) equipment, including personal resuscitation masks, and bag-valve-mask (BVM) resuscitators; airway management equipment, including oropharyngeal airways and manual hand-held suction devices; and oxygen delivery equipment, including oxygen tanks, regulators, non-rebreathing oxygen masks, and BVMs with oxygen reservoirs.

Basic Life Support: CPR is not a lifesaving procedure, but rather a life-sustaining procedure. Appropriate basic life support for a patient in respiratory and/or cardiac arrest includes positive pressure ventilation, airway management, management of hypoxia, early CPR, and early defibrillation.

AED Protocols & Use: The availability and use of AEDs in the aquatic setting should be practiced on a regular basis and all facility staff and lifeguard personnel should be proficient in the use of this equipment. We recommend that all trauma, respiratory distress and arrest, and cardiac distress and arrest patients be placed on a backboard as normal protocol. This makes movement of the patient easier, and prevents the patient from being in a pool of water during resuscitation efforts. When using the AED, the verbal commands that should be used prior to delivering a shock to the patient is, "I'm Clear; You're Clear; Everyone's Clear". Each clear check includes a visualization of the scene to be sure the primary rescuer is clear, all other rescuer personnel are clear, and that no one is touching the patient prior to the delivery of the shock.

Another verbal command that can be used is "High and Dry". If the patient is on a backboard and in/near a puddle of water, the command "High and Dry" is given and the patient, who is already on a backboard, can be quickly transferred to a safe location.

If the patient needs to be moved, a simple command by the incident commander of "Four Corners" should immediately trigger a response to all staff and lifeguards that each corner of the backboard should be grabbed by four persons to move the patient up the beach or away from the water. Typically, all rescuers face in the

direction of the patient's head and the patient is moved head first on the command from the incident commander and is typically done at the completion of a CPR cycle.

Incident Command: Fire and EMS Services have been using an integrated Incident Command (IC) system for years. Incident Command includes a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities. The Incident Command System (ICS) is designed to give standard response and operation procedures to reduce the problems and potential for miscommunication on such incidents. ICS has been summarized as a "first-on-scene" structure, where the first responder on a scene has charge of the scene until the incident has been declared resolved, a superior-ranking responder arrives on scene and seizes command, or the Incident Commander appoints another individual Incident Commander. The head or senior lifeguard may serve as the IC at the scene of an incident at the aquatic facility. Upon arrival of Fire and/or EMS Services, the aquatic facility IC then communicates with the IC of the Fire or EMS Service and then turns over command of the incident to that officer.

Surveillance Protocols: Every aquatic facility needs to develop objective surveillance protocols that can be implemented and easily evaluated by lifeguard supervisory personnel. The 30-second Rule, in combination with the 10/20 Rule are two such protocols. The 30-second Rule requires the lifeguard to scan his/her Zone of Responsibility (ZOR) twice within a 30-second period. The 10/20 Rule requires the lifeguard to determine within 10-seconds of recognizing a potential problem, whether or not lifeguard intervention is required. If intervention is required, the lifeguard then has 20-seconds by which to intervene. The ANSI/NSPI-1 Standard for Public Swimming Pools has adopted the 10/20 Rule as a surveillance standard, as has several other lifeguard training organizations. The YMCA of the USA uses the 10 x 10 Reaction Rule that requires the lifeguard to scan his/her Zone of Responsibility within 10 seconds and must be able to respond and intervene within 10 seconds.

Summary

Lifesaving Resources, LLC conducts training programs for the Public Safety and Rescue, as well as the Lifeguard and Aquatic Recreation Sectors. Our training programs utilize these principles and focus on the prevention, recognition, and management of drowning and aquatic injuries. I frequently consult as a Forensics Expert in drowning and aquatic injury litigation. The above principles are used as the foundation for the opinions rendered in my work in these matters.

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