

Public Aquatic Facility Safety Standards



LIFESAVING SOCIETY®

The Lifeguarding Experts

PUBLIC AQUATIC FACILITY SAFETY STANDARDS

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The Lifesaving Society is Canada's lifeguarding experts. The Society is a national charitable organization working to prevent drowning and water-related injuries through lifeguard, lifesaving, and swimming training, competitive lifesaving, safety management standards and services, and Water Smart® public education.

The Society is an independent, charitable organization educating Canadian lifesavers since the first Lifesaving Society Bronze Medallion Award was earned in 1896.

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Public Aquatic Facility Safety Standards

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Other Safety Standard Publications available from the Lifesaving Society include:

Waterfront Safety Standards: designed to assist waterfront owners and operators in providing a safe aquatic environment. It recommends minimum safety standards for waterfront operation.

Private Pool Safety Standards: designed to assist private pool owners and operators in providing a safe aquatic environment. It recommends minimum safety standards for private pool operation.

Semipublic Swimming Pool Safety Standards: designed to assist semipublic swimming pool owners and operators in providing a safe aquatic environment. It recommends minimum safety standards for semipublic swimming pool operation.

Public Wading Pool Safety Standards: designed to assist public wading pool owners and operators in providing a safe aquatic environment. It recommends a minimum safety standards for public wading pool operation.

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EXECUTIVE SUMMARY

Every owner of a public aquatic facility has an obligation to provide a safe environment for every user of the pool. This obligation has been very clearly identified and affirmed by court decisions across Canada. In order to meet this obligation, you need the assistance of the experts – the Lifesaving Society. The Lifesaving Society is the authority in aquatic standards and safety. Our standards and expertise are based on extensive research and over 100 years of public safety education and service. We are leaders in research and prevention of injury and drowning.

The Lifesaving Society has a mandate for public safety. The Lifesaving Society *Public Aquatic Facility Safety Standards* are your source of information about how to provide a safe environment and understand the regulations and standards that you must follow to achieve this goal. The Society developed and published these standards to educate pool owners about what they can do to safely operate their pool. Applying these standards to your pool will help you protect your customers – the public. It will also help you reduce the risk of injury or legal actions resulting from injuries.

The information in the Lifesaving Society *Public Aquatic Facility Safety Standards* is organized in a logical order to help you understand the material and take the necessary actions to create and maintain a safe environment for your pool users. The following sections of the Standards address information for specific needs:

- **The Drowning Problem** – Provides you with information from the Lifesaving Society Drowning Research about who is at risk of drowning or being injured at your pool and the behaviors that may result in injuries.
- **Definitions** – Definitions of terms used in the standards.
- **Risk Management** – Provides you with information about your responsibility as the pool owner for the safe operation of your pool. Explains the risk management process that you can use to analyze and understand the risks associated with your pool and take steps to eliminate or reduce these risks.
- **Personnel and Supervision** – Explains the requirements for staff to operate and supervise a public aquatic facility. It also includes recommendations for staff training and safety.
- **Emergency Procedures** – Emergency procedures are the steps pool staff can take to respond to an incident or help an injured person. This section provides guidance to help you identify and plan for the procedures you will need for your pool and select the necessary emergency equipment.
- **Safety Systems** – Safety systems are the day to day actions and policies established to prevent incidents and injuries. They include such things as pool rules and how they are to be implemented,

procedures for controlling access to the pool, suggestions for signs to educate users about hazards and safe behaviors for using the pool, and systems for supervising patrons.

- **Pool Operation** – Presents recommendations for the procedures used to operate the swimming pool and maintain a safe pool. This includes maintaining safe water quality, handling pool chemicals, and inspecting and testing pool equipment.
- **Safe Environment** – This section provides you with direction about how to make the physical environment of the pool safe. This includes items such as fencing, gates, recreational equipment such as slides, safe water quality, pool and equipment maintenance and much more.
- **Resources** – This section includes information about additional support resources and information available from the Lifesaving Society. This includes Lifesaving Society links to Government resources and other organizations which can assist aquatic facility owners and operators to provide a safe environment. The *Safety Management* section of the Lifesaving Society website: www.lifesaving.org is your key to the most complete and current resources from the Society. The website will also have information about emerging issues that may not have been included in this edition of the Lifesaving Society *Public Aquatic Facility Safety Standards*.

The Lifesaving Society recommends that you read the Lifesaving Society *Public Aquatic Facility Safety Standards* and use this document to evaluate your pool and determine what steps you can take to create a safe environment for your patrons. This information should be shared with facility staff such as lifeguards and pool operators as well as other management who have a safety management role such as a community recreation director and your municipal risk manager. At least one copy of the Lifesaving Society *Public Aquatic Facility Safety Standards* should be kept in the pool office for easy reference by facility staff. Additional copies are recommended for the other safety managers who should be aware of these standards.

Contact the Lifesaving Society for assistance to understand, interpret and implement the recommendations in the Standards. The Society contact information is located on the inside back cover.

FOREWORD

Faced with the potential for multi-million dollar lawsuits, public aquatic facility owners are becoming more proactive in assessing and managing risk in their aquatic environment. The Lifesaving Society believes that many incidents are foreseeable and therefore preventable.

As the lifeguarding experts, the Lifesaving Society is the authority in aquatic standards and safety. The Society establishes standards for public safety and consults on aquatic safety issues. The Society sets public safety standards for the aquatic industry such as the owners and operators of swimming pools, interprets safety standards for aquatic facility owners, advises government and serves as an expert witness in legal cases involving aquatic safety issues. The Lifesaving Society *Public Aquatic Facility Safety Standards* present the Lifesaving Society standards and recommendations for the safe operation of public aquatic facilities.

The Lifesaving Society has developed and published public safety standards for aquatic activities and facilities throughout our history. The Lifesaving Society Safety Standards are compilations of aquatic safety guidance from Lifesaving Society research that has been published over many years in a variety of Society manuals and publications as well as external publications. The scope of Society research into public safety and risk management practices includes research and real operational experience from across Canada and around the world. In turn, the Society's expertise is shared internationally with the Royal Life Saving Society Branches throughout the Commonwealth and with the International Life Saving Federation.

The Lifesaving Society *Public Aquatic Facility Safety Standards* assembles the standards published in these many different sources into a single document to make this information available and readily accessible to the public aquatic facility owner. This document provides owners of public aquatic facilities a set of clear recommendations from the Lifesaving Society for the safe operation of their pool. In addition to the Society's recommendations, this document also refers public aquatic facility owners to other codes, regulations, statutes or standards that should be considered when developing safe operating practices for their pool. This document does not in any way replace or supersede current legislation. Owners and users must obey all provincial and municipal legislation, regulations and by-laws specific to their public aquatic facility and community.

The Lifesaving Society recognizes that the recommendations provided in the Lifesaving Society *Public Aquatic Facility Safety Standards* are not the only solutions that public aquatic facility owners can use to provide a safe environment for their customers. The Lifesaving Society also recognizes that each public aquatic facility has unique features. No single document can address every situation and need. In situations where owners implement

alternative safety measures, the Society recommends that they thoroughly evaluate and document these measures. Contact the Lifesaving Society for assistance to understand, interpret and implement the recommendations in the Standards.

THE DROWNING PROBLEM

Drowning is the second leading cause of unintentional death in Canada. The great tragedy is that the vast majority of these deaths are preventable. More than 99% of these fatalities occur in aquatic environments without lifeguard supervision. Public aquatic facilities that are supervised by trained lifeguards are the safest locations for Canadians to go to enjoy aquatic activities. Since 1970, many public aquatic facilities have been built in Canada and have become the preferred site for many Canadians to engage in swimming and many other aquatic recreational activities. This has been a significant contributor to the four fold reduction in the Canadian water-related death rate since 1970.

Over a 10 year period from 1991 to 2000, 42 people drowned in public aquatic facilities. While this amounts to less than 1% of water-related fatalities, there is clearly room for improvement. In addition to the fatalities, more patrons were injured and needed medical attention. Public aquatic facilities have a drowning prevention role both within the facility as well as within the larger community. Within the facility, they must make every effort to identify potential hazards and take effective steps to prevent bathers from injury.

Within the larger community, the facility staff can provide training in swimming and lifesaving skills as well as Water Smart® education to teach the public to protect themselves around aquatic settings or during aquatic activities. Information about Lifesaving Society affiliate membership, training programs and Water Smart® education can be accessed through the Society website www.lifesaving.org or by directly contacting the Lifesaving Society. Water Smart® education materials available from the Lifesaving Society includes posters such as the “Within Arm’s Reach” poster and brochure, safety messages for signs and brochures, videos and activities that can be used to educate the public. The following Water Smart® information can be used to help develop safety rules for your facility and educate your patrons.

Children & Aquatics

While all age groups are at risk around water, deaths involving children are of particular concern. Drowning fatalities in children under the age of 5 are more than double that of any other age group. A major contributing factor in the deaths of children is the lack of adult supervision. For children under 5 years old, 85% were unsupervised when they drowned. For children age 5-12, 61% were unsupervised and in the age group from 13-15, 34% were unsupervised. These are alarming statistics, and speak volumes to the need for supervision of bathers at your pool.

Children are naturally curious about water. They are persistent and ingenious in finding a way to it. Tragedy can strike quickly. Ten seconds of

unsupervised play or exploration can result in a drowning. That's all the time it takes! It also only takes a few inches of water for a drowning to occur. To prevent such tragedies, children must be supervised any time they have access to the public aquatic facility. The best protection is to insist that all young children in the pool be directly supervised "Within Arm's Reach" distance by a caregiver. The message to your patrons should be: *If you are not within arm's reach, you have gone too far.* The role of the lifeguard should be to provide an additional level of supervision and educate caregivers about their supervision and drowning prevention roles. School age children also need Water Smart® education about safe ways to enjoy the pool. Requiring a buddy system for these children is a good way to provide another layer of supervision.

The key to protecting children at a public aquatic facility is preventing unsupervised access and always insisting that they be closely supervised when in the pool area.

Diving & Shallow Water

Lifesaving Society Drowning Research has found that shallow water presents risks that the public aquatic facility owner/operator should consider. For shallow water (less than 2.5m deep), the only safe entry method is feet first. Patrons who dive into shallow water are at great risk. They risk hitting the bottom head-first and injuring their spine from the impact. Many of these victims are young men. The consequences are tragic. Death sometimes occurs, but most times, the person is paralyzed. One dive into the pool can change their quality of life forever.

Approximately 34 Canadians become partially or completely paralyzed each year as a result of breaking their necks in water-related incidents. Most of these injuries occur while diving into shallow water. They also occur as a result of roughness or "horseplay" around the pool – throwing or pushing a person into the water, diving from high heights, diving off shoulders, or being "boosted" into the air by another swimmer. Dangerous play can result in a range of injuries which include possible spinal injuries, injuries resulting from collisions with the pool bottom or sides as well as injuries resulting from collisions between bathers. Patrons need Water Smart® education and rules about safe ways to enter, play and enjoy the pool.

Alcohol

Alcoholic beverages are involved in approximately one-third (36%) of all Canadian preventable water-related deaths, and half (48%) of fatalities where the victim was 18 to 34 years of age.

The high incidence of drowning and alcohol is an important factor for the public aquatic facility owner/operator to keep in mind. Many Canadian adults do not understand the increased risk from mixing aquatic activities and alcohol consumption. The effects of alcohol can include impaired judgement and physical coordination. Impaired patrons may not recognize

hazards and may engage in dangerous behavior. In addition they are at increased risk of injury as a result of their physical impairment. Consumption of alcohol in the pool area or using the pool while under the influence should be prohibited. Every effort should be made to identify impaired patrons and prevent access to the pool.

DEFINITIONS

- ❑ **Public Aquatic Facility** means:
 - Any swimming pool generally available to the public or any segment of the public for their use and includes whirlpools, wave pools and waterparks, or
 - A swimming pool operated in conjunction with or as part of a program of an educational, instructional, physical fitness or athletic institution supported in whole or in part by public funds or public subscription.
- ❑ **Facility Manager** means a person designated by the facility owner as being responsible for the management and operation of the facility.
- ❑ **Owner** means the person or corporation who is the owner of a public aquatic facility
- ❑ **Pool Operator** means the person designated at any given time who is responsible for the maintenance of health requirements as outlined in the Swimming Pool Regulations. This person shall hold certification from an approved swimming pool operator's training program.
- ❑ **Swimmer or Bather** means a person participating in any recreational activity in or on the water.
- ❑ **Patron** means any person using the aquatic facility. This includes swimmers or bathers plus any spectators or other persons on the deck, general area or in other areas such as changerooms within the aquatic facility.
- ❑ **Lifeguard** means a person holding a current National Lifeguard (NLS) certification appointed by the owner or operator to maintain supervision over the swimmers while they are on deck or in the pool.
- ❑ **Deck** means the area immediately surrounding the pool.
- ❑ **General Area** means an area adjacent to the deck within the pool enclosure that is used for activities other than swimming.
- ❑ **Diving Board** means a flexible board intended for use by divers.
- ❑ **Diving Platform** means a rigid board or platform intended for use by divers.
- ❑ **Wave Pool** means a swimming pool that is provided with a means for inducing wave motion in the water.
- ❑ **Current Award** means a training certification which is valid for a specified period from the date of certification or examination. The length of time that a certificate is current may be set by the certifying

body and/or government regulation. For example, Lifesaving Society National Lifeguard Award is current for 2 years from the date of certification and Lifesaving Standard First Aid certification is current for 3 years from the date of certification.

- ❑ ***Lifeguard Supervision*** is the deliberate and conscious act of observing facility users to ensure the lifeguard is immediately aware of any incident or behavior which may prove life-threatening or injurious.

RISK MANAGEMENT

Who is Responsible?

Ultimately the owner of a public aquatic facility is responsible for the safe operation of the facility. The responsibility for the operation of the facility may be delegated to a Facility Manager or Operator. This responsibility may be further delegated to individuals such as Supervisors or Lifeguards who may be left in charge of the facility if it is a supervised public pool. When the owner or manager is not present, the “in-charge” person, regardless of title, assumes full responsibility for the safe operation of the facility.

The Lifesaving Society *Public Aquatic Facility Safety Standards* outlines the Lifesaving Society’s recommendations for minimum safety requirements for public pools. Safety shall be the primary concern of pool owners and managers. All facility staff are encouraged to go beyond the minimum requirements in their mandate to provide a safe environment. This means practising risk management: working diligently to prevent emergencies, but also responding to them quickly and efficiently if they do happen.

Risk Management Process

Risk Management is an ongoing process that is used to identify risks associated with your pool and activities in the pool, and take measures to reduce risk and prevent incidents and injuries. The process includes the following steps:

1. Identify risks
2. Evaluate: Why are they happening? What is the source?
3. Develop controls and strategies to minimize or eliminate risks including education of facility users regarding safe behaviors
4. Implement
5. Monitor efforts and evaluate results

Preventing Incidents

All facility personnel shall view incident prevention as an integral part of their jobs. An attitude should be fostered and encouraged among staff that they are hired to anticipate incidents and take steps to prevent them, as well as respond to emergencies.

Establishing safety systems are important steps in prevention. One way of doing this is to keep accurate incident records. Tracking incidents and analysing these records to develop strategies to reduce risk is critical to risk management.

Facility analysis is an important means to reduce risk. Is equipment in good working order? Are there danger zones where incidents tend to occur or may occur? Are there problems created by structures or design? How secure is the area? Are the fencing and locking systems adequate? Can these be changed or the potential risk be reduced?

Insurance

The owner of a public aquatic facility shall make certain that an insurance policy and liability coverage are in place to cover the facility, staff, volunteers and patrons. Check with your insurance broker or agent to make certain that you have the appropriate insurance coverage and understand any requirements, limitations or exclusions that may be conditions of the insurance policy.

PERSONNEL AND SUPERVISION

Supervision

Lifeguards shall be on duty and on deck at all times when the pool area is open for use. In the event that the pool is being used solely for aquatic instruction, a qualified aquatic instructor may be substituted for a lifeguard only if each instructor is also a qualified lifeguard. Each instructor can only supervise one class or group. Direct supervision means direct and uninterrupted control of the bathers by the aquatic instructor who is charged with their care. If even one instructor is not a lifeguard, a lifeguard shall supervise the pool area.

Lifeguard Qualifications

Lifeguard - Required minimum qualifications:

- Minimum age 16;
- Hold a current National Lifeguard Award;
- Hold a current Standard First Aid (Aquatic Emergency Care Award or Lifesaving Standard First Aid recommended);
- Be trained in the facility safety systems and emergency procedures.

Aquatic Instructor Qualifications

Aquatic Instructor - Required minimum qualifications

- Minimum age 16;
- Hold a current Instructor award such as Swim for Life Instructor or Lifesaving Instructor;
- Hold a current lifesaving or lifeguarding award - minimum Bronze Cross (Distinction and National Lifeguard exceed the Bronze Cross minimum);
- Be trained in the facility safety systems and emergency procedures.

Note: If the instructor is required to also function as a lifeguard, he shall meet the required minimum qualifications for a lifeguard.

Orientation Training

All new or returning lifeguards and instructors shall receive orientation training before assuming their supervision duties. This training should include:

- Introduction to fellow staff members;
- Exploration of job description and responsibilities;
- Introduction to and evaluation of hazards and risks in the facility, and a review of facility rules and policies concerning them;
- Review of personnel policies and procedures;
- Specific job-related training required to familiarize staff with the facility's programs, activities, operation and maintenance, and policies and procedures concerning supplies and equipment;
- Specific training in the facility's safety systems and emergency procedures;
- Specific training in public relations and effectively dealing with the patrons.

Inservice Training

Pool staff and employers shall recognize the need for regular review of procedures and skills assessment. Inservice training should include:

- Evaluation and practice of emergency procedures designed specifically for the public aquatic facility;
- Review and practice of supervision, recognition and rescue skills;
- Practice use of safety equipment;
- Review of supervision policies and procedures including number of staff per patron and guidelines for patron and staff conduct;
- Review and practice of first aid skills including use of first aid equipment and supplies;
- Practice of public relations and effectively dealing with the patrons;
- WHMIS training appropriate to the materials and equipment they may be expected to use.

Aquatic Facility Supervision Standard

Every owner/operator of a public aquatic facility shall establish an Aquatic Facility Supervision Standard. This standard shall define the minimum requirements for lifeguards and instructors who are responsible for the supervision of bathers. The standard should include:

- Fitness and skill standards appropriate for the facility;
- Minimum vision and hearing standards;
- Practices to evaluate if conditions such as injuries, illness and pregnancy prevent the staff person from meeting the standard;
- Minimum training to effectively perform all required supervision duties;
- A process to identify and replace on duty any staff member who is not able to meet the standard at any time she is scheduled to work in a supervision role.

Two parties have a responsibility to ensure that staff are able meet their obligations - the employer and the lifeguard/instructor. The employer is required to take reasonable steps to ensure that supervision staff are able to perform to the Aquatic Facility Supervision Standard when employed in a supervision role. The lifeguard/instructor also has a personal responsibility to be able to meet the required Aquatic Facility Supervision Standard at anytime that she is lifeguarding or instructing. It also requires that anytime she is not able to meet the standard (eg. due to illness or injury) she shall inform her employer. A lifeguard who is unable to meet the minimum standard to lifeguard or instruct at her facility should not work in a supervision role until she is able meet the standard.

Pool Operator

At least one staff member must be a certified pool operator. The pool operator is responsible for the safe operation of the physical plant of the swimming pool including maintaining safe water quality. The pool operator shall hold a certificate confirming that individual's successful completion of an approved swimming pool operator's training program that is recognized under the Swimming Pool Regulation.

Staff Manual

Every public aquatic facility should develop a Staff Manual. This manual should be readily available to the facility staff. The Lifesaving Society recommends that all staff be provided with a personal copy of the Staff Manual. The intent of this manual is to function as a training and reference resource for the pool staff and management. The suggested content should include:

- All facility supervision procedures and requirements;
- All specific safety systems and emergency procedures that the staff member is required to know and be able to do;
- Relevant employment policies and procedures as well as any specific employment standards such as the Aquatic Facility Supervision Standard.

The Staff Manual may be a subset of the more comprehensive Facility Operating Manual.

Staff Communication

A system shall be implemented which provides for regular communication and updates for facility staff. The primary purpose is to communicate information that is useful in maintaining the safety of patrons and staff.

Examples of this information includes:

- Notice of large groups scheduled to attend the facility;
- Reporting of equipment in need of repair and steps taken to protect users;
- Notice of equipment closure or repair.

Health and Safety

Barrier Devices

All pool staff shall have access to barrier devices to prevent cross contamination in a first aid situation. At minimum this shall include a rescue breathing barrier device with a one-way valve and disposable surgical gloves. Because public aquatic facility staff may be required to initiate first aid before the facility first aid kit arrives, the Lifesaving Society recommends that all staff have barrier devices that can be carried with them while on duty.

Sun Protection

All pool staff working at outdoor facilities shall have effective protection from sun and weather. Protection from the sun may include protective clothing, SPF 30 sunscreen and/or shade structures at the lifeguard stations. The Lifesaving Society position statement – Sun Protection in the Aquatic Environment – is posted in the Safety Management section of the Society website at www.lifesaving.org.

EMERGENCY PROCEDURES

All public aquatic facilities shall develop and document a set of emergency procedures appropriate to the needs of the facility. The emergency procedures may be a combination of general and specialized emergency procedures designed to address incidents or injuries that may be expected to occur at the specific facility. It may be necessary to have different versions to accommodate different staffing levels (eg. 1 lifeguard vs. 2 lifeguards on duty).

General Procedures

These are generalized procedures which can be adapted to a variety of incidents or injuries.

- **Minor Emergencies** - adequate pool coverage can be maintained at all times by one or more lifeguards (eg. simple first aid, public relations)
- **Major Emergencies** - adequate pool coverage cannot be maintained and pool must be cleared until lifeguard attention can be directed back to pool supervision (eg. multiple victims, serious first aid, pullout requiring resuscitation)

An excellent reference for developing emergency procedures for your pool is the Lifesaving Society lifeguarding manual – *Alert, lifeguarding in action*. This manual also provides excellent guidance for many of the safety practices that are required for a safe environment. Additional resources are available on the Lifesaving Society website at www.lifesaving.org.

Specialized Procedures

Specialized procedures are designed to address very specific situations that may require very clear, detailed procedures. These situations may include events which threaten multiple individuals such as a fire or a gas leak. Other situations such as the treatment of possible spinal injuries benefit from developing very clear and detailed procedures which can be practised and developed to a competent and consistent level of skill. Facility management and staff should analyse the types of situations that would benefit from specialized procedures and develop the appropriate emergency procedures.

Examples of common specialized emergency procedures include:

- Evacuation procedures for fire or chemical exposure such as chlorine gas leak;
- Power failure;
- Missing person;
- Lightning;
- Bomb threat;
- Spinal procedures;

- Scuba injury;
- Specialized features such as diving tanks, waterslides or wave pools.

Emergency procedures should include and document at least these elements:

- Emergency signals;
- Procedures for clearing the pool;
- Roles of all responding staff;
- Roles of bystanders;
- Procedures for contacting emergency services;
- Defined focal points for removing a victim from the water and providing treatment;
- Emergency equipment required;
- Procedures for notifying any other persons (eg. management, a victim's family members, other persons that might be affected by the incident);
- Practices for dealing with media inquiries.

Required Emergency Equipment

Every public aquatic facility shall have the following emergency equipment available and appropriately located for use in an emergency:

- A dedicated emergency telephone with posted emergency numbers;
- At least 2 buoyant throwing assists with a buoyant line attached. The length of the line should be at least the width of the pool;
- At least 2 reaching poles at least 3 metres in length. Ideally the pole should have a large hook that can be used to pull a person to safety;
- At least one spineboard with an effective immobilization system. At least one extra spineboard with head immobilizer is recommended for backup when a spineboard is removed from the facility to transport a spinal injury victim;
- At least one Number 2 first aid kit with a rescue breathing barrier device with a one-way valve and disposable surgical gloves. Extra supplies for high use items such as bandages should be available;
- A designated first aid area.

The following equipment may also be appropriate for lifeguard use:

- A rescue aid such as a rescue can or tube;
- Oxygen inhalator capable of a flow rate of 10 - 15 litres/minute. Inclusion of a pocket mask with oxygen fitting can permit oxygen resuscitation of a nonbreathing victim;
- One or more extra spineboards with head immobilizers for training purposes;
- An Automated External Defibrillator (AED).

Note: Emergency equipment can be purchased from the Lifesaving Society and various safety equipment suppliers. Instructions for building throwing assists and reaching poles are available on the Lifesaving Society website www.lifesaving.org.

Contacting Emergency Services

Every public aquatic facility shall have an emergency telephone which is easily accessible from the deck and directly connected to emergency services or the telephone utility. “Directly connected” is interpreted as guaranteed direct access. Facilities that use phones not directly connected to an emergency service shall provide a phone line that guarantees immediate access to the emergency operator. A shared phone line is not acceptable if it allows the phone line to be busy when required for an outgoing emergency call. The telephone shall be able to work in the event of a power failure.

Emergency contact telephone numbers shall be posted by the emergency telephone.

It is recommended that a script for the emergency call be posted beside the emergency phone. This is particularly important if the emergency procedures include the use of bystanders to contact emergency services. The script should be designed to provide the information required to direct the request for emergency assistance. This may include information such as: facility address, phone number, a prompt to describe the nature of the emergency, the location for emergency access, etc. A sample script is available on the Lifesaving Society website.

Critical Incident Stress

In the event of a serious injury incident, all persons involved in the incident such as rescuers or bystanders should be provided access to Critical Incident Stress Management (CISM) education and support. The Lifesaving Society can provide contacts for CISM support. Local EMS and victim services organizations can also provide local contact information for Critical Incident Stress Management services in your community.

SAFETY SYSTEMS

All public aquatic facilities shall develop and document a set of safety systems appropriate to the needs of the facility. Safety systems are the day to day actions and policies established to prevent incidents and injuries. They include such things as pool rules and how they are to be implemented, and procedures for preparing the pool area for bathers. Safety systems are an important part of minimizing risk and preventing injury.

Facility Operating Manual

Every Public aquatic facility shall develop and maintain a comprehensive Facility Operating Manual. This manual should document all facility operating standards, expectations, policies and procedures required for the safe operation of the facility. The purpose of the manual is to serve as a training and reference resource. It should be stored in an easily accessible location.

Pool Safety Rules

Every public aquatic facility shall develop and apply a set of rules to guide safe use of the aquatic facility and its equipment. These rules are intended to reasonably control the risks associated with the use of an aquatic facility while also facilitating the enjoyment of the aquatic recreation experience. The rules shall be documented in the Facility Operating Manual. Facility staff should carefully analyse the facility and equipment to identify risks which may be inherent in their design and construction. Patterns of patron use will also provide useful data. The results of this analysis should be used to develop the safety rules. These rules should be communicated to patrons through the use of signs, announcements and other forms of public education.

Swimming Pool Regulation Requirements

The Swimming Pool Regulation requires that operators regulate behavior which could result in pool contamination and/or disease transmission. This includes excluding persons who have diarrhea, or who have had diarrhea in the past 2 weeks, those who have an enteric disease or a disease communicable from the skin, requiring a cleansing shower, preventing polluting of the pool water, etc. For more information refer to the Swimming Pool Regulation of the Alberta Public Health Act.

Safe Diving Rules

Diving injuries are a leading cause of spinal injuries. Over 90% of spinal injuries occur in water less than 1.8 metres (6 feet) deep. Based on this research, the Lifesaving Society's Standard for a minimum safe water depth for diving entries off the side of a pool or dock is 2.5 metres. Entries into water less than 2.5m deep should be feet first.

Recreational Equipment Rules

Rules for the safe use of recreational equipment such as diving boards and platforms, slides, inflatables, etc. shall be developed. These rules should include directions for safe use as well as any necessary restrictions such as age or height restrictions.

Signage

Signs serve two functions in a public aquatic facility:

- Inform users about the suggested rules for safe use of the facility;
- Warn users of hazards and ways to avoid these hazards.

Signs with general safety rules shall be posted in a conspicuous location in the pool area. Where possible, utilize signs which use pictures to convey the message. Use of universal symbols provides instant recognition and avoids confusion if readers cannot read or do not read English.

Standards for Signage

Color:

- Red slash - the activity is prohibited.
- Yellow background - warning or caution
- Green Border - activity is permitted

Rules: clearly indicate which activities are prohibited or permitted. Including the reason for the rule increases compliance.

Duty to Warn: identify hazards, the risk or consequence of the hazard and how to avoid it.

Location: should be posted at the hazard and where possible, at the access points or routes.

Signs Required by Public Health Act

The Swimming Pool Regulation lists requirements for “health protection signs” that shall be posted in the changerooms, pool area and office area. They also require a sign to be posted which indicates the maximum bather load for the pool.

Facility Safety Rules Signs

The facility safety rules signs should list general rules to guide the safe use of the public aquatic facility. Some sample rules which should be posted are:

- Suggested minimum age and requirements for supervision of children (eg. all children under the age of 7 should be accompanied “Within Arms Reach” by a responsible person 16 years of age or older);
- Request for notification of medical conditions that may affect bather safety; eg. seizure disorder (eg. please alert the attendant of any medical conditions you may have);
- Anyone not toilet trained must wear protective water resistant

- swimwear to prevent fouling and contamination of the pool;
- Please walk, deck is slippery;
- Foot first entry only into the pool (a picture of no diving);
- Play safe. Don't push others into the pool;
- No glass containers are allowed in the pool or on the deck.

Note: It is a common practice to include the health protection rules required by the Swimming Pool Regulation on the facility safety rules signs.

Whirlpool/Hot Tub Signs

Safety rules for whirlpools commonly include some or all of the following examples:

- Check for safe temperature - a maximum of 40 C;
- Enter and exit slowly. Headache or dizziness are signs to leave the water immediately;
- Do not use the whirlpool alone;
- Limit length of use to 10 - 15 minutes at one time. **Note:** A clock should be clearly visible from the whirlpool;
- Children under 12 years of age should be supervised by an adult at all times. Children under five years of age are not allowed in the whirlpool;
- Pregnant women should use a whirlpool only with the approval of their doctor;
- Persons suffering from heart disease, diabetes and high or low blood pressure should consult their doctor prior to use;
- Do not use the whirlpool while under the influence of alcohol, antihistamines, anticoagulants, vasoconstrictors, vasodilators, tranquilizers, stimulants or narcotics.

Recreational Equipment Signs

Recreational equipment such as waterslides, diving boards or rope swings require specific rules and restrictions for safe use of each item. These rules shall be posted in a readily visible location near each piece of equipment.

Diving Signs

Signs providing clear direction about where diving is permitted or restricted shall be posted in locations readily visible to the diver.

Other Signs

Signage should be considered for appropriate locations that informs customers about emergency signals and the facility admission policy. Facility management and staff should regularly evaluate if the existing signs are effective or whether other signage is required and take appropriate follow-up measures.

Admission Policies

Admission policies shall be established as part of the facility rules and communicated to the public through signs and public education. Suggested topics for admission policies include:

- Minimum age and requirements for supervision of children;
- Notification of medical conditions that may affect bather safety (eg. seizure disorder);
- Requirements for group admissions such as orientation to the facility and its rules;
- Additional supervision requirements.

Bather Load

The total number of bathers shall not exceed the maximum bather load for the pool as defined in the Swimming Pool Regulation. Bathers refers to people on the deck and in the water. People in the general area (such as areas set aside for loungers or for watching swimmers) are not considered bathers. However, if these people cross over from the general area onto the deck or into the pool, then they become part of the bather load.

Supervision Systems

Every Public Aquatic Facility shall establish systems to provide effective supervision of all persons and activities within the pool area.

Minimize Distractions

The primary duty of lifeguards is supervision. All efforts shall be made to minimize distractions which may interfere with this duty. Short conversations between lifeguards and bathers are necessary for public education about safe use of the facility and are key injury prevention practices. Longer conversations are not recommended because they interfere with effective supervision. Assigning duties such as pool maintenance which may distract the lifeguard is not recommended.

Lifeguard Positioning

The supervision position(s) of lifeguards shall be designed to eliminate blind spots in the pool area. It shall be possible for the lifeguard team to observe all bathers in the pool area. Facility management and staff shall analyse the pool area and implement systems that provide coverage of blind spots. These systems might include the use of elevated lifeguard stations, walking lifeguard patrols or the use of observation tools such as large mirrors or video cameras and monitors. A system shall be implemented to provide regular observation of off-deck areas such as changerooms, saunas and steamrooms, exercise facilities, etc.

Vigilance

Lifeguarding is a vigilance task. Every effort shall be made to keep the lifeguard alert and focused on supervision. Regular rotation between stations and regular breaks from the vigilance task are required. If two or more lifeguards are on duty on deck, they should rotate lifeguard stations every 15 - 30 minutes.

The Lifesaving Society recommends that lifeguards should be provided with a minimum 15 minute break from the supervision task every 2 hours. During this break lifeguards may be required to perform other duties such as maintenance.

Scanning

All lifeguards shall be able to continuously scan their area of responsibility. Short interruptions which are designed to prevent injury (eg. safety education) are acceptable.

Lifeguard Identification

All lifeguards shall wear a uniform which permits them to be easily and quickly identified. The purposes of the lifeguard uniform is to make the lifeguards stand out so that they are readily distinguished from bathers and spectators, and can be quickly contacted in case of an emergency or when assistance is required.

Number of Lifeguards

At least one lifeguard shall be on duty on deck in order to open the pool for use. The Lifesaving Society recommends that at least one other trained responder be on duty, within call and on the premises. This additional person should be trained in the emergency procedures for the facility. This person does not have to be a lifeguard and may be another staff person such as a cashier, janitor or manager. This recommendation for an additional person also applies during periods when the pool is being used for instruction or competition under the direct supervision of one aquatic instructor.

Note: “Within call” means the lifeguard on deck shall be able to call the additional person by voice or by a prearranged alarm system. The lifeguard shall not have to leave the pool enclosure or the victim to summon the assistance of the additional person. The additional person shall be on the premises. Use of a pager or cell phone to call for assistance from an additional person who is off-site does not fit the meaning of “within call”.

Lifeguard to Bather Ratios

The following table has been used by public aquatic facilities for many years in Alberta (before 1985) as a reference for determining the minimum number of lifeguards required for a given bather load.

Number of Bathers	Number of Lifeguards
1 - 75	1
75 - 150	2
151 - 275	3
276 - 400	4
401 - 550	5
551 - 700	6
701 - 1000	7

Note: These numbers were developed at a time when the typical public aquatic facility was a single rectangular swimming pool, usually 10 - 13m wide by 25m long (surface area of about 250 - 325 square metres). ***In many cases, these ratios will not be adequate to provide effective supervision and it will be necessary to increase the number of lifeguards for a given number of bathers.***

Facility managers and staff shall analyse their specific facility, equipment and bather behaviors to determine appropriate lifeguard to bather ratios for their facility. Some of the factors to consider include:

- Size and configuration of the facility;
- Wave pool;
- Number of pools;
- Number of bathers;
- Age or ability/disability of patrons;
- Level of adult supervision such as parents or teachers;
- Type of bather activity;
- Danger areas;
- Equipment in use (eg. toys, slides);
- Public education and relations requirements;
- Indoor or outdoor operation;
- Blind spots or glare.

Lifeguards should regularly (eg. every 30 minutes) count the number of bathers in the pool. This count should be used to select the number of lifeguards required for that bather load. It is recommended that these counts be documented and used to regularly evaluate lifeguard requirements.

Instructional Programs Supervision

Every Public Aquatic Facility shall establish systems to provide effective supervision during instructional programs. These systems may include:

- Defined meeting locations where students meet their instructor;
- Procedures to safely guide students out of the pool area after completion of the program;

- Supervision practices for instructors designed to provide continuous observation of all students.

Aquatic Instructor to Student Ratios

Facility management shall consider patron safety foremost when setting instructor to student ratios. The instructor shall be able to effectively manage the number of students and prevent emergencies. Some factors to consider include the type of activity and the age and swimming ability of the students.

Incident Tracking and Analysis

Effective injury prevention requires an understanding of what types of injuries may occur and the circumstances under which the injuries may result. Every public aquatic facility shall institute a system to document and analyse all injuries and rescues that occur in the pool. This data shall be used to evaluate and where appropriate modify emergency procedures, safety systems, staff training or any other practices that might benefit from this analysis.

POOL OPERATION

Water Quality

Maintaining excellent water quality is a critical component of operating a safe environment for your patrons. The water quality shall protect the health and safety of the users by protecting them from disease transmission and maintaining balanced water to prevent injury from chemicals in the water. Good water quality also contributes to protecting the pool and its equipment and the swimmer's enjoyment of the pool.

Disinfection and Water Balance

Effective pool disinfection and water balance shall be maintained at all times that the public aquatic facility is open for patrons. These procedures shall meet or exceed the minimum standards required in the Swimming Pool Regulation. The Regulation also stipulates the minimum water testing requirements.

The Centres for Disease Control (CDC) has published a standard for the disinfection of water in a whirlpool which is significantly higher than the minimum required under the Swimming Pool Regulation. The CDC Standard requires a minimum Free Available Chlorine (FAC) of 4.0 - 5.0 ppm be maintained in all whirlpools. This standard is a result of research into exposure to Legionella and Pseudomonas in public pools. The Lifesaving Society recommends that the CDC standard should be used for the disinfection of all whirlpools and other warm pools.

Pool Water Clarity

The pool water clarity or the visibility of the pool bottom shall be evaluated regularly throughout each day that the facility is in operation. The Swimming Pool Regulation states that "the water in a filled swimming pool shall be sufficiently clear that the pattern of the pool drain can be clearly seen by a person standing on the edge of the pool at the deep end or that a black disc 150 millimetres in diameter on a white background, located on the bottom of the pool at its deepest point, is clearly visible from any point on the deck 9 metres away from the disc.

Good bottom visibility is imperative for public safety and cannot be compromised. If there is any doubt about water clarity, the pool shall be closed until the problem is corrected.

Pool Fouling

Every public aquatic facility shall develop a procedure to deal with a pool fouling incident. The facility shall follow the requirements of the Provincial Fecal Contamination Management Policy published by Alberta Health and Wellness. This procedure shall be able to provide for the removal of the contaminating material and provide effective disinfection of the pool. A pool fouling incident may involve the release of feces, vomit, blood or other organic, potentially infective material into the pool water.

Measures shall be implemented which minimize the probability of a pool fouling incident. Children who have not been toilet trained shall be required to wear a cloth or pool diaper covered by an impermeable pant with closures that seal around the leg and waist openings. Persons with diarrhea, or who have had diarrhea in the past 2 weeks, shall be directed to stay out of the pool until they are well.

Pool fouling is a serious concern. Illness involving E Coli and cryptosporidium have been traced to exposure in aquatic facilities. The Lifesaving Society website has resources to help aquatic facilities develop strategies to manage pool fouling incidents.

Mechanical and Chemical Maintenance

All facility mechanical systems and chemical handling shall be maintained and operated in a manner which protects the facility users and staff. The standards for these practices shall be documented and followed by all facility staff. Reference sources for these standards include:

- Manufacturer directions and Material Safety Data Sheets (MSDS);
- WHMIS regulations and training;
- Pool operator manuals and training programs;
- Occupational Health and Safety regulations;
- Transportation of Dangerous Goods regulation;
- Recommendations from fatality inquiries.

Inspections and Testing

All areas and equipment of the public aquatic facility shall be inspected and/or tested on a regular schedule. The schedule should be designed for the needs of the specific equipment or area of the pool. This may range from a simple visual inspection to a process to test the safe operation of the equipment. Tools such as checklists should be used to document the inspection results and insure that the inspection process is consistent and comprehensive. Any deficiencies identified shall be documented and recommendations for corrective measures identified.

Deficiencies which affect the safe operation of the pool or equipment should be corrected immediately. If this is not possible, effective steps shall be taken to protect users and staff. In some cases it may be necessary to close the pool or equipment until it can be returned to a safe condition.

Recreational Equipment

All recreational equipment (eg. waterslides, diving boards) should be inspected daily before public access is permitted. Equipment in unsafe condition shall be closed until repairs can be completed and evaluated.

Emergency Equipment

Pool emergency equipment shall be inspected daily. All equipment shall be maintained in a state of readiness. Any deficient equipment shall be repaired or replaced immediately.

Suction Hazards

All pool water outlet covers shall be inspected regularly (eg. monthly) when the pool is in operation. If any of the pool's water outlet covers are loose or missing the pool shall be closed until the cover is repaired or replaced.

Note: An outlet is an opening in the pool that can generate suction (eg. main drain, vacuum fitting or skimmers). Loose or missing outlet covers have caused fatalities and serious injuries in aquatic facilities. Regular inspection of these outlets shall be established.

Facility staff must not underestimate the power or danger of suction. Outlet cover inspections should be undertaken with extreme caution to ensure staff safety. The inspection procedure should include:

- Shutting down the filter system and ensuring that:
 - There is no suction in the system;
 - The system is locked down or supervised to ensure that it is not turned on during the inspection;
- A diagram of the pool depicting the outlet covers will guide the inspection. Each outlet cover should be assigned a number to help the accurate recording of inspection results;
- A second person should be present as an emergency back-up during the inspection;
- Record the inspection results and any remedial action required and completed.

Note: Some pool and whirlpool circulation systems include pool skimmers with equalizer fittings located in the pool wall below water level. All equalizer fittings shall be permanently plugged and disabled so that there is no possibility that these fittings could create a suction hazard.

Any pool with only one drain shall have an anti-entrapment device installed and maintained. Suction from the main drain in pools with only one drain has caused drownings and serious injury in the past. An anti-entrapment device can prevent this.

Pool Lighting

Pool lighting should be inspected daily and shall be adequate to easily see bathers and hazards. Burned out bulbs should be replaced immediately.

Emergency lighting should be tested at least once every month.

GFI - Ground Fault Interrupters

All GFIs shall be tested at least monthly. Any GFI that fails the test shall be disabled and the circuit it controls removed from use until the GFI can be repaired or replaced.

SAFE ENVIRONMENT

The public aquatic facility owner shall be familiar with all codes and regulations that apply to the operation of a public aquatic facility. This includes the building code which sets minimum construction standards for a public pool. Where applicable, relevant information from these standards should be incorporated into the policies and procedures of the facility and documented in the Facility Operating Manual.

Facility Access Control

Every public aquatic facility shall implement a system to control access to the pool and the pool equipment. This includes providing effective locks, key control procedures and policies for access control. The pool area shall be locked and not accessible to the public at all times when effective supervision is not available.

If the pool is an outdoor pool, it shall be enclosed by a fence and gate system that complies with the Alberta Building Code requirements for a public swimming pool. In summary, the building code requires that the pool be enclosed by a barrier at least 2.0m in height that prevents unauthorized access to the pool. The pool gate shall be at least 2.0m in height and equipped with a self closing, self latching, lockable mechanism that is located at least 1.5m above ground level. Consult the building code for the specific design requirements.

Hazardous areas such as mechanical rooms and chemical storage areas shall be locked at all times that the facility is open or accessible to the public.

Recreational Equipment Safety Standards

Waterslides

Waterslides shall be maintained and inspected according to the instructions supplied by the manufacturer. Controls should be implemented which minimize the risk of collision or injury within the slide or the landing pool/flume at the bottom of the slide. Examples of controls would be:

- A slide attendant controlling the dispatch of sliders;
- Signage indicating that the next slider can't go until the slider ahead has reached the end of the slide;
- A light which is controlled by a timer or a sensor which is automatically activated when it is safe for the next slider to go.

Operators should evaluate factors which affect the movement of bathers within the slide (eg. water flow rate) and establish appropriate safety standards.

Note: Slider speed can affect the safety of the bathers. Sliding slowly and excessive speed can both create safety risks.

Diving Boards or Platforms

Minimum standards for safe entries off a diving board or platform are provided in the FINA (Federation Internationale de Natation Amateur) preferred standard. The latest version of the standard is available through links at the Lifesaving Society website or in the Alberta Building Code.

The FINA standards were designed to protect skilled competitive divers who are trained and supervised by diving coaches. Untrained recreational divers may experience a greater level of injury risk than competitive divers.

Note: Many older pools have diving boards and/or platforms that were installed according to an early standard and may not be able to meet the current FINA standard. ***The Lifesaving Society recommends that all diving board installations comply with the FINA preferred standard. The Lifesaving Society recommends that diving boards and platforms which cannot meet the current FINA standard should be removed from use.***

Starting Blocks

Starting blocks for swimming competition shall be installed and maintained in accordance with the manufacturers' directions. Refer to the Swim/Natation Canada rule book for the standard for the use of starting blocks for swimming competition and practice.

If the starting blocks are available for use by the general public, the Lifesaving Society recommends that the water depth under and in front of the blocks shall meet the FINA standard for a diving platform of that height.

Other Recreational Equipment

Other recreational equipment such as rope swings or large inflatable structures shall be installed and maintained in accordance with the manufacturer's instructions. These installations shall be analysed to identify any hazards or risks and steps taken to control these risks. Where entry from a height is involved, the FINA Diving standard may be useful for evaluating safe depth requirements.

Recreational Equipment Installation

Installation of all recreational equipment shall be in compliance with the Alberta Building Code. This code covers all permanently installed play equipment. The hardware of this equipment should be corrosion resistant and the design and location approved. The owner/operator shall be aware of the specific regulations governing diving boards and water slide flumes.

Recreational equipment shall be installed, maintained and operated in accordance with the manufacturer's specifications unless it contravenes the Alberta Building Code. These specifications can be obtained from either the manufacturer or the distributor of the equipment.

Recreation equipment shall not contain any protrusions, means of entanglement or other obstruction that might cause the entrapment of a bather. All new equipment should be tested by the pool staff and appropriate rules for use be determined and posted before being released for use.

Lifesaving Society Resources

Many resources are available from the Lifesaving Society to assist aquatic facility owners and operators to evaluate the safety needs of their facility and to develop practices for the safe operation of the facility. These resources include information about safety standards, training programs, resource manuals, sample practices, forms and much more. Visit the *Safety Management* section of the Lifesaving Society website, www.lifesaving.org, for the most complete and current list and links to resources from the Society. You can also contact the Lifesaving Society with questions or requests for assistance.

Lifesaving Society standards, programs, products and services include:

- *Lifesaving Society Safety Standards*: designed to assist aquatic facility owners and operators in providing a safe aquatic environment. Includes standards for public facilities, semipublic pools, wading pools, beaches and private pools.
- *Lifesaving Society Reference Manuals*: examples include Canadian Lifesaving Manual (definitive lifesaving training reference) and Alert: lifeguarding in action (the lifeguard training reference).
- *Lifesaving Society Training Programs*: Swim for Life Learn to Swim Program - the national standard for swimming; Canadian Lifesaving Program - lifesaving training including the Bronze Cross award; National Lifeguard Program - training awards for lifeguards at pools, waterparks, waterfronts and surf beaches; Lifesaving First Aid - includes CPR, Lifesaving Emergency and Standard First Aid, Aquatic Emergency Care, Oxygen Administration; and more.
- *Lifesaving Society Position Statements*: formal Society Positions on a variety of topics such as use of defibrillators by lifeguards and sun protection in aquatic environments.
- *Risk Management Articles*: used to educate facility owners about public safety issues and the measures they can take to create safe environments and enhance public safety. Sample topics include: pool color and design, inservice training, facility lighting, lifeguard positioning, suction hazards, and pool fouling.
- *Drowning Research*: Drowning Reports – analysis of the Society’s annual drowning research.
- *Public Education*: Water Smart® messages about choices to reduce risks in, on and around the water; Within Arm’s Reach video, brochure and posters; Sudden Impact video, and much more.
- Sample forms and tools for developing risk management practices for your facility. Examples include first aid forms, major incident documentation, EMS telephone scripts, Critical Incident Stress Management, suggested contents for Aquatic Staff Manual.
- *Aquatic Safety Management Services*: Lifesaving Society services to help you operate a safe aquatic environment. Includes aquatic safety

audits, facility design and operation consulting, safety standards and expert witness services.

- *Safety Equipment and Training products*: includes spineboards and head immobilizers, barrier devices such as pocket masks, whistles, rescue tubes, lifeguard clothing, Actar CPR training manikins and much more.

Note: Visit the Lifesaving Society website to find new resources, products and services that are added and updated regularly on the website.

Government Resources

The Lifesaving Society *Public Aquatic Facility Safety Standards* summarizes standards, guidelines and recommendations from the Lifesaving Society intended to provide guidance for the safe operation of public aquatic facilities. This guidance is not intended to replace requirements that may be included in statutes, regulations or guidelines of the Government. Public aquatic facility owners should also be aware of these government requirements. Information about these requirements and links to government websites are included in the *Safety Management* section of the Lifesaving Society website: www.lifesaving.org.

Relevant Provincial Government statutes, regulations or guidelines may include:

- Alberta Building Code
- Fire Regulations
- WHMIS
- Swimming Pool Regulation of the Public Health Act
- Employment Standards Regulation
- Occupational Health and Safety Code
- Occupiers Liability Act
- First Aid Regulation
- Working Alone Safely
- Transportation of Dangerous Goods

Other Relevant Resources

Resources from other organizations such as the Centres for Disease Control (CDC) and FINA are valuable resources to assist aquatic facility owners to evaluate the safety needs of their facilities and to develop practices for the safe operation of their aquatic facilities. Information about these organizations and links to their websites are included in the *Safety Management* section of the Lifesaving Society website: www.lifesaving.org.

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