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CHAPTER 6

GUIDELINE IMPLEMENTATION

Recreational-water activities can bring numerous positive health benefits to users, including exercise and relaxation. However, negative health effects may also be realized, as has been demonstrated in previous chapters. It is necessary to address these issues and implement effective management options in order to minimize and reduce the adverse health consequences through implementation of the Guidelines.

Management interventions vary, and a wide range of preventive and corrective actions are available for the development and management of public, semi-public and private pools, spas and other recreational water-related facilities. Such actions are grouped here in four major categories: design and construction, operation and management/supervision, public education and information, and regulatory requirements, all of which can remediate differing health outcomes. Successful implementation of the Guidelines will require development of suitable skills and expertise, as well as the elaboration of a coherent policy and legislative framework.

Table 6.1 summarizes the health risks and management concerns associated with various pool types or uses.

Table 6.1: Health risks and management concerns associated with various pool types

Pool type or use (refer to chapter 1)	Special risk factors[a]	Principal management changes
Pools with aerators (including hot tubs)	Increased aerosolization (3) Difficulties in maintaining chlorine residual (5)	*Legionella*-specific management Increased chlorine monitoring, alternative strategies to management of microbial quality Education for high-risk people
Flumes, wave machines, etc.	Increased accident hazards, inhibition of visibility (2)	More intensive supervision
Natural spa waters	Microbiological water quality if water is untreatable (problems may be encountered with either filtration or disinfection) (3)	Drain-down obligatory after AFR Monitoring for faecal indicators required Special water quality management regime typically requires physical cleaning of surfaces above and below water Regular drain-down and a high rate of dilution to waste
Natural spa waters (coloured or turbid)	Inability of users to see changes of depth (2) Inability of lifeguards to see bodies under surface (2)	No sudden underwater depth changes or steps
Flow-through seawater swimming pools on cruise ships	Polluted water in harbour areas Risk of contamination from sewage discharge	Refer to WHO *Guidelines on Water Safety and Sanitation on Cruise Ships* (in preparation)
Open-air pools	Exposure to UV radiation degrades residual disinfectant (5)	Close monitoring of disinfectant residuals or use of stabilizer (e.g., chlorinated isocyanurates) to lessen degradation
	Access to unsupervised children (2)	Exclusion of unsupervised children through fencing, walls with childproof gates/doors
	Algal growth (5)	Best controlled by ensuring effective disinfection and good hydraulic design; If problems persist, then proprietary algicides may be used.
	Contamination by mud and grass on users' feet (5)	Pre-swim showers and footbaths
	Contamination by animal faeces, animal urine and wind-blown matter (3 and 5)	Best handled by ensuring effective disinfection and filtration as well as good circulation and hydraulic design
Unsupervised pools (e.g.,	Access to children (2)	Exclusion of unsupervised children through

Pool type or use (refer to chapter 1)	Special risk factors[a]	Principal management changes
domestic, clubs, hotels)		fencing, walls with childproof gates/doors
	Use of alcohol (2)	Signage regarding recommendation that alcohol not be used on the premises
Semi-public pools (hotels, clubs, condominiums, etc.)	Lack of supervision increases risk of injury (2)	Signage regarding peer supervision and safe behaviours
		Education of specific user groups
		Hotline for emergency use or other emergency communication option
	Lack of adequate water quality management increases the risk of illness (3)	Water quality best controlled by ensuring effective disinfection (automatic monitoring and dosing of chemical) and filtration as well as good circulation and hydraulic design
Pools with access to alcohol (e.g., clubs, hotels)	Increased inappropriate behaviour, reduced ability to cope, impaired judgement (2)	Supervision required
		Physical exclusion of access at unsupervised times
Temporary/portable pools (generally domestic)	Accidents on entering or leaving (2)	Isolation fencing with child-proof gates
	Poor peer supervision because of reduced visibility (2)	Education/awareness material (signs requiring continual parental supervision) with all pools
	Deterioration in water quality (3)	Drain, wash and refill after an AFR
Paddling pools	Access to children — drowning (2)	Isolation fencing with child-proof gates
	Poor parental supervision — perception of low hazard (2)	Signs requiring continuous parental supervision for children
	Deterioration in water quality (3)	Drain, wash and refill after an AFR
Tidal pools, gravel pits, impoundments, etc.	Resemble natural water bodies — refer to WHO *Guidelines for Safe Recreational-water Environments. Vol. 1: Coastal and Fresh Waters*	

[a] Relevant chapter references are identified in parentheses.

6.1   Good design and construction

Local and national authorities may set specific requirements that must be met in the design and construction of swimming pools, spas and similar recreational-water facilities. Alternatively, less formal guidelines may be established by these authorities or by professional or trade associations. Competent and experienced persons may be members of professional associations or may be subject to licensing schemes to practise. There may be a process of approval for design and during construction — for example, through building regulations. Equipment specified or purchased should meet prevailing standards (see section 6.4.2).

Table 6.2 summarizes examples of good practice in design or specification of swimming pools and spas in relation to the major health issues discussed in previous chapters.

Table 6.2: Examples of good practice in design: major health-related issues

Objective[a]	Typical actions/requirements of good practice
Minimize exposure to volatile chemicals (4)	Ensure air flow across water surface (forced or natural ventilation).
	Limit recirculation volumes.
Minimize formation of disinfectant by-products by control of precursor input (5)	Provide easy-access toilets between changing areas and pool and with easy access from pool.
	Locate forced-access showers between changing areas and pool.
Minimize and control faecal and non-faecal microbiological contamination (3)	Provide easy-access toilets, showers and footbaths between changing areas and pools and with easy access from pool.
	Adequate filtration and disinfection.
	On commissioning or after equipment change or modification to pipes, drains, etc., confirm uniform circulation pattern and absence of dead spots (e.g., by dye tests).
	For public pools, include small, separate pools for children to facilitate safe

Objective[a]	Typical actions/requirements of good practice
	management of AFRs.
	Lifeguards have continuous ready access to tested public address system (applies to larger public pools).
Prevent entrapment and entrapment injuries (2)	Specify minimum two suction drains per pump system, with drains sufficiently separate to prevent trapping.
	Properly installed outlets and drain grates to prevent suction entrapment.
	Pump shut-off permanently accessible to lifeguards or public (if no permanent lifeguard).
Ensure adequate lifeguarding (2)	All areas of pool visible from lifeguarding posts.
	Adequate artificial light.
	Glare does not impede underwater visibility.
	Plain pool bottom assists recognition of bodies.
Prevent diving accidents (2)	Clear indication of depth in locally comprehensible manner at frequent intervals.
	Signage against diving into shallower water.
Prevention of slip/trip/fall accidents (2)	Non-slip surround surfaces.
	Area bordering pool clear of tripping hazards (e.g., pipes, ornaments, equipment, furniture).
	Temporary fixtures create no hazard when removed (e.g., starting blocks).
	Pool surround sloped to drain effectively.
	Edge of pool surround in contrasting colour (unless gentle slope from surface).
	Steps, treads, etc. marked by contrasting colour.
	Pool and surround free of sharp edges or projections.
Accident response capability (2)	Rescue equipment including backboard continuously available to lifeguards.
	Resuscitation equipment readily available.
	First-aid equipment.
	Communication links to local emergency and first-aid facilities.
Minimize unintentional immersion and enable self-recovery (especially for non-swimmers) (2)	Avoid abrupt changes in depth, especially in shallow (e.g., <1.5 m depth) waters.
	Changes in depth identified by use of colour-contrasted materials.
	Side and end walls vertical for a minimum of 1 m.
	Steps/ladders for easy access in and out of pool.

[a] Relevant chapter references are identified in parentheses.

6.2   Good operation and management

The operation and maintenance of the recreational-water environment venue are the most effective ways of ensuring safe water and surrounding facilities. In implementing the Guidelines, Table 6.3 summarizes examples of good practice in management and operation to deal with the hazards identified in previous chapters.

Table 6.3: Good practice in management and operation: major health-related issues

Objective[a]	Typical actions/requirements of good practice
Control after AFRs (3 and 5)	Staff detects and acts on AFRs.
	Evacuation of pool immediately after AFRs.
	Pool maintained out of use for a specified period, six full turnovers of filtration cycle during which disinfectant concentrations to be elevated and maintained at maximum normal operating concentration.
	Declared procedure for dealing with AFRs, all staff trained and familiar.
	Lifeguards have continuous ready access to tested public address system (applies to larger public pools).
Prevention of drowning injuries (2)	Declared procedure for dealing with emergencies, all staff trained and familiar.
	Water transparency monitored and action plan in place to deal with trends or deviations from acceptable range.
Prevention of slip/trip/fall	Regular cleaning programme for all surfaces subject to algal or bacterial growth.

Objective[a]	Typical actions/requirements of good practice
accidents (2)	Minimize presence of moveable objects (i.e., objects that could be transported near to pool edge and constitute a trip hazard).
Prevention of diving injuries (2)	Signage against diving into shallower water, active lifeguard supervision and intervention supported by management.
	Starting blocks and diving boards inaccessible to untrained persons and/or appropriate signage.
	High boards with non-slip surfaces and side rails.
	Where possible (larger pools), designated areas for non-swimmers and children, increased supervision.
Maintenance of water quality and clean ancillary facilities (3 and 5)	Stated water quality and facilities monitoring programme implemented and recorded by trained staff.
	Declared process for dealing with adverse trends and unacceptable values.
	Identification of source of expertise/reference in case of problems.
	Availability of critical parameter water-testing equipment.
	Filtration performance periodically monitored and action taken if outside operational requirements.
	Maintenance of toilets, showers and changing rooms in clean, socially acceptable state.

[a] Chapter references are given in parentheses.

6.2.1   Lifeguards

According to the Health & Safety Commission, UK and Sport England (1999), the primary responsibilities of the lifeguard include the following:

- supervising the pool area, keeping a close watch over the pool and its users;
- preventing injuries by minimizing or eliminating hazardous situations, intervening to prevent unsafe behaviours, exercising appropriate control and enforcing all facility rules and regulations;
- anticipating problems and preventing accidents, including warning bathers of the risks of their specific behaviours (these are also called preventive actions);
- identifying emergencies quickly and responding effectively, including effecting a rescue from the water, administering first aid or CPR, and informing other lifeguards and facility staff when more help or equipment is needed; and
- communicating with the pool users and colleagues.

Secondary responsibilities should not interfere with the primary responsibilities of lifeguard personnel. These secondary responsibilities include informing patrons about rules and regulations, helping patrons locate a missing person, completing required records and reports on schedule and submitting them to the proper person or office, and undertaking maintenance or other tasks as assigned.

A detailed example of the duties and requirements of the lifeguard is given in Box 6.1. Box 6.2 illustrates two ways in which lifeguard staffing levels can be determined.

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Box 6.1: Examples of duties and requirements of the lifeguard

The lifeguard will normally need to be:
- physically fit, have good vision and hearing, be mentally alert and self-disciplined;
- a strong, able and confident swimmer;
- trained and have successfully completed a course of training in the techniques and practices of supervision, rescue and first aid in accordance with a syllabus approved by a recognised training organisation.

The deployment of lifeguards would normally take the following into consideration:

- duty spells and structuring of duties — maximum uninterrupted supervision period, working day, programmed breaks;
- lifeguard numbers — dependent on the pool type, size and usage;
- surveillance zones — observation and scanning requirements;
- supervision of changing facilities — showers, toilets, seating and other areas of potential hazard.

Source: Health & Safety Commission, UK and Sport England, 1999

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Box 6.2: Examples of lifeguard staffing approaches

In the United Kingdom, lifeguard numbers may be determined as shown in Table 6.4.

Table 6.4: Lifeguard numbers per square metre of pool

Approximate pool size (m)	Area (m^2)	Minimum number of lifeguards (normal)	Minimum number of lifeguards (busy)
20.0 × 8.5	170	1	2
25.0 × 8.5	212	1	2
25.0 × 10.0	250	1	2
25.0 × 12.5	312	2	2
33.3 × 12.5	416	2	3
50.0 × 20.0	1000	4	6

Notes:
1. Where only one lifeguard is on duty, there should be adequate means of summoning assistance rapidly.
2. The water area column can be used as a guide for irregular-shaped pools.

Source: Health & Safety Commission, UK and Sport England, 1999

The number of lifeguards required for safety can also be calculated based on sweep time and response time. In the USA, a common generalization for the required number of lifeguards is referred to as the "10/20 rule." According to the 10/20 rule, a lifeguard should be able to sweep the entire assigned area every 10 s and reach a troubled swimmer within 20 s.

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Should the pool be used by groups with their own "lifeguards," it is important that the criteria that apply to the professional pool lifeguard be equally applied to the volunteer. The hazards and the potential negative health outcomes associated with those hazards are no less when supervision and management are undertaken by volunteers.

There are a multitude of courses offered for the training and certification of lifeguards. Box 6.3 provides examples of some important elements of lifeguard training. Box 6.4 provides an example of an international pool lifeguard certificate.

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Box 6.3: Examples of important elements of lifeguard training

I.   Characteristics and responsibilities of a professional lifeguard
II.   Public interactions
     a. Responding to inquiries
     b. Handling suggestions and concerns
     c. Addressing uncooperative patrons

     d.   Dealing with violence
     e.   Working with diverse cultures
     f.   Accommodating patrons with disabilities
III.   Responsibilities to facility operations
IV.   Preventing aquatic injury
V.   Patron surveillance
VI.   Facility surveillance
VII.   Emergency preparation
VIII.   Rescue skills
     a.   General procedures
     b.   The rescue tube
     c.   Entries
     d.   Approaching the victim
     e.   Victims at or near the surface
     f.   Submerged victims
     g.   Multiple victim rescue
     h.   Removal from the water
     i.   Providing emergency care
IX.   First aid for injuries
     a.   Soft tissue injuries
     b.   Musculoskeletal injuries
     c.   Special situations
     d.   Moving a victim
X.   First aid for sudden illnesses
     a.   Specific sudden illnesses
     b.   Poisoning, bites, and stings
     c.   Heat and cold exposure
     d.   Caring for children and older adults
XI.   Spinal injury management
     a.   Anatomy and function of the spine
     b.   Recognizing spinal injury
     c.   Caring for spinal injury
     d.   Caring for a victim in deep water
     e.   Spinal injury on land
XII.   After an emergency — responsibilities

Source: American Red Cross (1995)

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Box 6.4: International Pool Lifeguard Certificate of the International Life Saving Federation

This is a statement of minimum competencies required for equivalent recognition throughout ILS member countries. For successful recognition for the International Pool Lifeguard Certificate, the candidate must be able to:

LEARNING OUTCOME 1: Perform water-based skills on the front only in a pool environment.
Assessment Criteria:
    1.1   Swim 50 m in less than 50 seconds with the head above the water.
    1.2   Swim 300 m in less than 6:00 minutes without using equipment.
    1.3   Swim 25 m under water, retrieve three (3) objects placed 5 m apart in the deepest end of the pool).

LEARNING OUTCOME 2: Demonstrate combined rescue without equipment.
Assessment Criteria:

2.1 Consecutively perform combined rescue technique in the following sequence in less than two (2) minutes:
   − lifesaving entry (stride jump, slide entry); then,
   − 25 m freestyle with head up
   − surface dive to adult dummy/person (minimum depth of 1.5 m)
   − lift the dummy/person and tow minimum of 25 m to the edge of pool
   − lift the person out of the pool.

LEARNING OUTCOME 3: Demonstrate the use of land-based rescue simulation skills.
Assessment Criteria:

3.1 Lift conscious patient and transport them over a minimum distance of 25 m using a recognized patient transport technique.

3.2 Perform simulated rescue using a throwing aid to a conscious victim in the water over a minimum distance of 10 m.

LEARNING OUTCOME 4: Perform emergency response techniques including resuscitation and first-aid techniques.
Assessment Criteria:

4.1 Perform basic patient management techniques, including:
   − DRABC [Danger, Response, Airway, Breathing, Circulation]
   − lateral position & patient rollover
   − calling for help

4.2 Perform resuscitation techniques, including:
   − EAR [Expired Air Resuscitation] (adults, children, infant)
   − CPR (adult, children, infant)
   − one- and two-person CPR operation
   − set up and apply oxygen equipment

4.3 Identify and perform first-aid techniques for managing injury and emergency, including:
   − patient management
   − identifying and managing injuries (i.e., shock, fractures, arterial and venal bleeding, spinal injury, etc.)

LEARNING OUTCOME 5: Document medical knowledge about a range of conditions associated with rescues.
Assessment Criteria:

5.1 Describe the application of appropriate emergency treatments in a rescue situation including CPR and spinal management.

5.2 Describe the use of medical equipment in emergency situations.

5.3 Identify regulations pertinent to managing emergency medical situations.

5.4 Identify and list medical services available for support in an emergency medical situation.

LEARNING OUTCOME 6: Choose and plan strategies to manage basic emergencies.
Assessment Criteria:

6.1 Identify and select possible strategies for water rescues and emergencies.
6.2 Identify and solve potential problems for putting plans into place.
6.3 Design a basic emergency management plan.
6.4 Practice emergency management plan.
6.5 Review and modify basic emergency management plan.

LEARNING OUTCOME 7: Identify and describe issues related to the facility/workplace.
Assessment Criteria:

      7.1   List the specifications of the pool, including depth, access, use of spas or saunas, etc.

      7.2   List the nearest available safety services.

      7.3   Find and use potential resources for use in rescue.

Assessment Strategy:
These learning outcomes are best assessed using the following common assessment methods:

      Observation (personal, video review)

      Oral questioning

      Written examination (short answer, multiple choice)

      Simulated rescue scenario

Range of Variables:
There are a number of variables that will affect the performance and assessment of the learning outcomes associated with the International Lifesaving Certificate. ILS members applying for equivalency should articulate the use of such variables in their documentation.

Variable	Scope
• Facilities	Swimming pool lengths/depths and measurements (metric/imperial). Use of alternative aquatic locations where pools are not available. Identification of equipment that is available for use.
• Dress	Candidates may be required to wear their recognized uniform; long shirt and pants or short shirt and pants during the assessment.
• Candidates	Candidates will have experience and will be seeking employment or currently employed as a lifeguard.
• Resources	ILS member organizations will list and identify the use of theoretical and practical resources available to them.

Source: International Life Saving Federation, 1998

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6.2.2 *Pool safety operating procedures*

It has been suggested that a normal operating procedure addressing injury and accident prevention strategies should be established and made available. The normal operating procedure sets out the daily pool operations (example given in Box 6.5), including details on risk assessment, a plan of the pool outlining hazards, access points, information points, supervision requirements, etc.

In addition, it has been suggested that an emergency action procedure (example given in Box 6.6) should be formulated, providing staff with actions to be taken in the event of an emergency. Examples of emergency events for which an emergency action procedure may be followed (Health & Safety Commission, UK and Sport England, 1999) include:

- overcrowding;
- disorderly behaviours (including violence to staff);
- lack of water clarity;
- outbreak of fire (or sounding of the alarm to evacuate the building);
- bomb threat;
- lighting failure;
- structural failure;
- emission of toxic gases;

- serious injury to a bather; and
- discovery of a casualty in the water.

Together, the normal operating procedure and the emergency action procedure are known as the pool safety operating procedure.

Box 6.5: Examples of normal operating procedure

1. Details of the pool(s) — dimensions and depths, features and equipment and a plan of the building. The latter may also include positions of pool alarms, fire alarms, emergency exit routes and any other relevant information.
2. Potential risk — an appreciation of the main hazards and users particularly at risk is required before safe operating procedures can be identified.
3. Dealing with the public — arrangements for communicating safety messages to customers, customer care, poolside rules for the public and for lifeguards controlling access.
4. Lifeguard's duties and responsibilities — and special supervision requirements for equipment, etc., lifeguard training and numbers of lifeguards for particular activities.
5. Systems of work — including lines of supervision, call-out procedures, work rotation and maximum poolside working times.
6. Operational systems — controlling access to a pool or pools intending to be out of use, including the safe use of pool covers.
7. Detailed work instructions — including pool cleaning procedures, safe setting up and checking of equipment, diving procedures and setting up the pool for galas.
8. First-aid supplies and training — including equipment required, its location, arrangements for checking it, first aiders, first-aid training and disposal of sharp objects.
9. Details of alarm systems and any emergency equipment, maintenance arrangements — all alarm systems and emergency equipment provided, including operation, location, action to be taken on hearing the alarm, testing arrangements and maintenance.
10. Conditions of hire to outside organisations.

Source: Health & Safety Commission, UK and Sport England, 1999


Box 6.6: Sample emergency action plan for a wave pool or water slide

In case of an emergency, you should be prepared to respond as follows:

- When you spot a patron who needs help, activate the facility's emergency action plan (see flowchart below). By immediately blowing one long, loud whistle blast, you notify your safety team that there is an emergency. Once you have given the signal, members of the safety team can react to the situation.
- Once you activate the emergency action plan, stop the waves or slide dispatch. At a wave pool, hit your emergency stop button to be sure the waves are turned off. If you are on duty at the top of an attraction, do not dispatch any more riders. Communication between the top and bottom positions is vital. Use predetermined whistle signals, hand signals, flags, or lights, or a combination of these to indicate that there is an emergency.
- Determine which method of rescue is needed. If it is necessary to enter the water to make a rescue or an assist, use the entry most appropriate for the location you are lifeguarding. For example, you might use a compact jump from a head wall. If it isn't necessary to enter the water, use the appropriate equipment to help the victim.

- If you are not the lifeguard making the rescue, make sure the rescuing lifeguard's zone is covered. At a deep-water attraction, all lifeguards should stand in their lifeguard chairs and adjust zone coverage to compensate for the lifeguard who is making the rescue. At a shallow-water attraction, even though dispatch should be stopped, have a nearby lifeguard move to a place where he or she could cover his or her own zone along with the rescuing lifeguard's zone. A lifeguard who is nearby on a break may provide backup surveillance and take over the position of the rescuing lifeguard. If two lifeguards must enter the water to make rescues, other guards come in to cover their positions. At a single-guard attraction, the rescuing lifeguard's area should be covered by the lifeguard at the attraction closest to where the rescue is taking place.

- Once the situation is under control, the lifeguard who made the rescue also completes and files an incident report as soon as time permits. This report form should have a diagram of the pool or activity on the back so that the location of the incident can be marked for future study. All people involved must complete the appropriate reports.

- All equipment used in the rescue must be in good condition and replaced in its original spot. Lifeguards return to duty, if able, and patrons are allowed to participate in the activity again if there are enough guards to cover it.

Sample emergency action plan flowchart
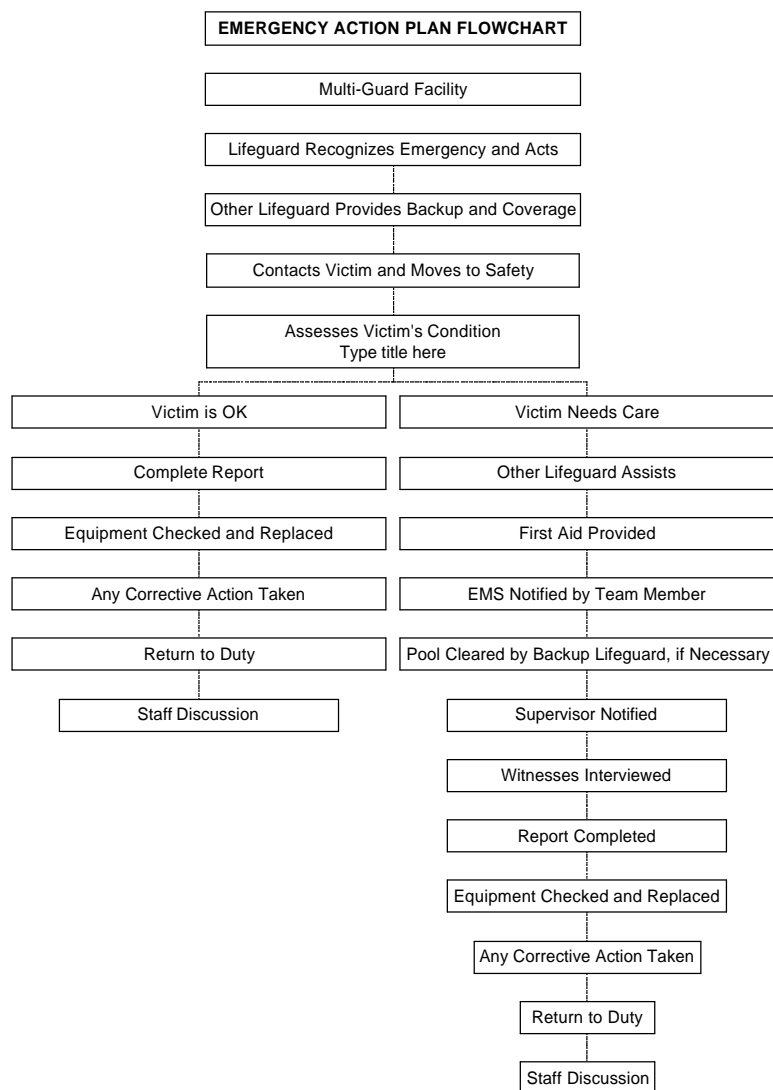
Source: American Red Cross (1995)

6.3   Public education and information

Information for the public should be distributed to encourage use of swimming pools and similar recreational-water environments, as well as healthy behaviour while there and efforts to protect users against hazards. Swimming clubs and voluntary lifesaving groups can play an important part in this process. Education policies to raise awareness of hazards are also an essential element of management of recreational-water use areas. The provision of information becomes more important where less can be done to reduce the risk through other measures. Water safety strategies should take into consideration the vulnerability of groups suffering from medical problems, and these groups should be given special attention.

6.3.1   Signage

Signage is an outgrowth of the concept of warnings. Many national organizations have adopted descriptive standards, and the International Organization for Standardization (ISO) is considering signs approved by the International Life Saving Federation and designed by the Royal Society for the Prevention of Accidents in the United Kingdom. Studies have proven the acceptance and cognizance of such warning placards, pictographs and labelling.

Signage conveys the alert (e.g., Danger), the hazard (e.g., shallow water), the health risk (e.g., paralysis may occur) or the prohibition (e.g., No Diving, along with a pictograph with the universal circle with a slash), as well as an array of other information, instructions and regulations. Signs are best deployed to reinforce previous awareness raising and education and should be placed at key access points and along the area with the harmful conditions. Signage also includes pool labels and markings, such as pool depth markings.

However, more recent observations relative to the possible ineffectiveness of such signs relate to language barriers between the authority and the users. Many signs have been ineffective when such explanatory and precautionary information was in a language not understood by the bathers. Limited evidence suggests that signs alone may be un-noticed or have very limited impacts on behaviour (Hill, 1984; Goldhaber & de Turck, 1988).

6.3.2   Education

Communication as an injury prevention strategy has three aspects (American Red Cross, 1995):
* informing patrons about the potential for injury;
* educating patrons about the consequences of inappropriate behaviour; and
* enforcing rules and regulations that prevent injury.

Bather safety may be improved if hazards are identified and bathers educated before they enter the pool environment. An attempt at education can be achieved by providing notices or safety leaflets to bathers at the pool entrance, in changing areas and on the poolside as well as to those in charge of organized group activities (Health & Safety Commission, UK and Sport England, 1999).

Box 6.7 provides an example of a pool users' safety code. Education information can even be added to agreements or contracts with pool hirers. However, perhaps one of the most important sources of education is lifeguards; although their supervisory role is well known, their role as

providers of information is sometimes overlooked (Health & Safety Commission, UK and Sport England, 1999).

Box 6.7: Model swimming pool users' safety code

1. Spot the dangers — Take care, swimming pools can be hazardous. Water presents a risk of drowning, and injuries can occur from hitting the hard surrounds or from misuse of the equipment.

Every pool is different, so always make sure you know how deep the water is and check for other hazards, such as diving boards, wave machines, water slides, steep slopes into deeper water, etc.

2. Always swim within your ability — Never swim after a heavy meal or after alcohol. Avoid holding your breath and swimming long distances under water. Be especially careful if you have a medical condition such as epilepsy, asthma, diabetes or a heart problem.

Follow advice provided for the safety of yourself and others. Avoid unruly behaviour that can be dangerous — for instance, running on the side of the pool, ducking, acrobatics in the water, or shouting or screaming (which could distract attention from an emergency). Always do as the lifeguards say, and remember that a moment of foolish behaviour could cost a life.

3. Look out for yourself and other swimmers — It is safer to swim with a companion. Keep an eye open for others, particularly younger children and non-swimmers.

Learn how to help. If you see somebody in difficulty, call for help immediately. In an emergency, keep calm and do exactly as you are told.

Source: Health & Safety Commission, UK and Sport England, 1999

6.4   Regulations and good practice

6.4.1   Regulatory requirements and enforcement

The extent to which swimming pools and spas may be regulated varies greatly. In some countries, a permit or licence to operate is required by the local municipal authority. In others, a level of regulatory oversight is provided, based on specific regulations and/or advisory codes of practice.

Most local municipal authorities in the USA, for example, require that the initial plans for the construction of a new pool or spa be submitted by a licensed engineer. The design and construction plans then have to be reviewed and approved by a licensed engineer from the local municipal authority's office. These plans generally include complete detail and layout of the facility, including amenities, and complete detail regarding the individual circulation system components (pumps, filters, chemical dosing system, etc.). Once approved, the construction of the facility may commence. However, prior to issuance of the final permit for operation, a physical inspection of the final facility and basic daily operations management is required (e.g., Is a qualified pool operator on site? Is a licensed lifeguard on site?). Also, the local municipal authority requires periodic audits of any public swimming facility and basic daily operation management practices to verify continued compliance with the local code. Swift corrective action is required for any code violations noted during the audit. The facility will be closed to

the public if the code violation is deemed a great enough hazard to public health or safety and not allowed to reopen until the time that the problem has been rectified.

The review of the facility plans prior to construction, the initial audit of the final facility and basic daily operation management, and the ongoing surveillance audits allow for continued assurance that the facility meets the local health code. In areas where this level of regulatory oversight is not available, it may be prudent to request a private review of the facility by a knowledgeable engineer and/or pool operations professional.

In situations where a regulatory infrastructure is not in place to determine compliance with the local health code — or, if a local health code does not exist, compliance with the guidelines — it is advisable that a method of evaluating hazards and implementing risk management procedures be developed. Development of a Hazard Analysis and Critical Control Point (HACCP)-type guideline is an appropriate approach [this will be expanded on following release for public comment].

Most regulations apply to public pools, but limited evidence suggests that the greatest burden of disease and physical injury arises from domestic and semi-public pools, such as those found in hotels, clubs, schools and community centres. These may be subject to periodic or informal supervision, and their operation and maintenance may be less adequate than those at public pools *per se*. Special interest groups may not be properly protected.

Local regulatory oversight can support the work of pool management and provide even greater public health protection and public confidence. Inspections by the regulatory officials to verify compliance with the guidelines are an important component of this oversight.

Regulations may control, for example, the design, construction, operation and management of public pools (refer to sections 6.1 and 6.2). These may be quite detailed and specific in their requirements, covering water treatment procedures, sampling and testing regimes, and signage, as well as the provision of lifeguards and their training and qualification.

Another aspect of pool management that may necessitate regulatory involvement is occupational health and safety legislation, designed to ensure protection of pool employees (occupational health is not covered by these Guidelines; see chapter 1), as well as the general public.

National legislation may control substances hazardous to health and necessitate close oversight by the necessary specialist inspectorate. Typically, public pools and spas will contain quantities of disinfectants and other chemicals in liquid and/or gaseous form, and their safe handling, storage and use require care and attention by properly trained, competent people (refer to chapter 5).

In all cases, regulatory involvement should be welcomed and not seen as a further burden on pool management. The purpose of regulatory involvement is to ensure that pools and spas are operated as safely as possible in order that the largest possible population gets the maximum possible benefit, not to close facilities or hinder their proper operation.

The role of regulatory compliance may be successfully extended to provision of minimum facilities and supervision by local operators — for instance, in terms of lifeguards and first-aid facilities. Regulatory action may be local or global.

Results of monitoring programmes must be made available to participants, so that they can make informed decisions on using the facilities, and to the regulators, so that they can take decisions with owners of facilities to carry out needed improvements. The public is also entitled to receive the results of monitoring so that individuals can choose whether or not to visit and use a particular facility.

6.4.2   Certification schemes

All equipment components installed in the facility should meet minimum performance, design, sanitation and safety requirements. Certification that the equipment, personnel or entire pool is in compliance with the guidelines or regulatory requirements is helpful for all involved parties.

Equipment that may be certified for performance, sanitation and/or safety considerations includes the following:
* piping system;
* filters;
* pumps;
* surface skimmers;
* suction fittings and drain covers;
* valves (multiport, three-way, butterfly, etc.);
* chemical feeding devices (mechanical, flow-through);
* process equipment (chlorine/bromine generators, ozone generators, UV disinfection systems and copper/silver ion generators);
* heaters;
* automated chemical monitor/controllers; and
* electrical equipment (safety).

There are four basic methods of certification in use:
* *First party* — Self-certification of the product's compliance with a standard by the manufacturer. Concerns are often raised with manufacturers' self-certification because of the potential bias of the manufacturer and the lack of ongoing monitoring to ensure that the product continues to comply.
* *Second party* — Certification by a trade association or private party. In many instances, trade associations or private companies provide testing and certification services for products against industry standards or regulations. Since a trade association represents and is often controlled by manufacturers, second-party certifications are not considered to be completely independent. Typically, no follow-up services to monitor continued compliance are provided. As a result, it is often difficult to determine whether a product selected for use is identical to the unit that was originally evaluated for certification. Private, for-profit, companies also offer testing and certification services that monitor the continued compliance of the product. These follow-up services often include audits of the production location, ongoing testing and complaint investigation.
* *Third party* — Certification by an independent organization without direct ties to the manufacturing sector. Third-party certifications provide for an independent evaluation of the product coupled with follow-up services that help ensure that products continue to comply with all requirements. These follow-up services typically include audits of the production location, ongoing testing of representative products and complaint investigation. The follow-up service aspect of third-party certification is an advantage, in that the purchaser has the assurance that the product installed is identical to the product evaluated for the certification. Third-party certifiers also maintain close working relationships with the regulatory and user

communities. This provides for a more balanced assessment of the product and helps ensure that the product will be accepted by local, regional and national regulatory agencies.

- *Fourth party* — Certification by governmental agencies. In some instances, local, regional or national governmental agencies will require that products be evaluated by the agency or a designated representative organization for compliance with regulations for installation, use and operation. Typically, no follow-up monitoring services are provided by the agency. As a result, continued compliance is often left up to the manufacturer.

6.5   References

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