

# Summer 2005



## Aquatics

## Risk

## Management



Texas Municipal League—Intergovernmental Risk Pool  
Loss Prevention Department  
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[www.tmlirp.org](http://www.tmlirp.org)

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These resources are intended to help aquatic personnel better understand and manage safety and risk management issues. Your facility may have to change sample rules and policies as needed for local circumstances. For more information on Texas Department of State Health Services rules on swimming pools, please see the “Summary of Texas Department of Health Standards for Public Swimming Pools” at <http://www.tdh.state.tx.us/beh/ga/pools.htm>.



# Aquatics Facility Safety Tips

Municipal swimming pools offer a fun time. However, without proper accident prevention measures, swimming pools can present significant exposures for municipalities. The following loss prevention measures may help reduce the risk of injury, death and liability at municipal aquatics facilities. State codes, local codes, and ordinances should be considered when applicable.

## Perimeter and Fencing

An important part of swimming pool accident prevention is discouraging unauthorized entry. Areas around the facility should be cleared of chairs, overhanging tree limbs, or other items that could be used for gaining access to the enclosed pool area. Maintain your fence line free of overgrowth. On the outside of the fence, signs indicating “No Unauthorized Access” will serve to warn potential unauthorized entrants. Regularly check the fence for signs of damage.

## Entryway and General Area



Post clear and concise pool rules and bather loads in the most visible location at the entryway. Post the rules in other locations as the situation requires, such as a sign at the diving board with the diving board rules, and signage on the deck indicating ‘please walk’ or ‘no running’ and ‘no diving.’ Post emergency telephone numbers near the telephone. A first aid kit and other emergency equipment should be located in the office. Backboards should be clearly displayed and accessible to lifeguards. The head immobilizers should be firmly secured to the board. If required, a ring buoy with rope and a shepherd’s crook should be visible when the pool is open.

## Diving Boards



Personnel should inspect diving boards. For a one-meter recreational diving board, the minimum pool depth is eleven feet two inches, but in designing a pool, you might consider a deeper pool to guard against head and neck injuries. The slope of a pool bottom is also an important factor, as well as other measurements. The depth should be clearly marked on the deck and wall surrounding the pool at least every twenty-five feet. “No Diving” areas should be indicated on the deck itself, along with the international no diving symbol. Texas Department of State Health Services codes address diving board installation and other requirements. These codes have recently changed, as of September 1, 2004. The diving area should be evaluated according to the applicable standards. The standards have a measurement chart.

Only one diver should be permitted on the diving board at a time, with the diver taking no more than a single bounce. Divers should land in the pool’s deep end away from the board. Spinal injuries are often caused by striking the sloped area as it rises towards the shallow end. To prevent use by the general public or an untrained user, the fulcrum of the board should be locked in the forward position so that people cannot adjust the spring tension of the board.

Pool personnel should make daily inspections of the diving board, ladders, slides, and other equipment to identify wear and tear that could lead to breakage. Daily maintenance should also include washing the diving board to remove scum, which can cause slips and falls. Diving board rules should be clearly displayed and strongly enforced. Waterslides should be inspected everyday before startup. Personnel should check the waterslide before opening. It is a good idea that when lifeguards rotate, they go through the waterslide to check for any rough spots or abnormal conditions and report them.

## Wading Pools



Wading pool activities require adherence to safety measures. Children should be accompanied by a parent or an adult eighteen years of age or older whenever using the wading pool. Accidents can occur in a split second in toddler pools even while under adult supervision. For this reason, some pools assign a person to watch the wading pool. If a lifeguard is not assigned to the wading pool, then guards should regularly check on the wading pool as part of their rotation. Rules and signage should be clearly posted. Wading pools should be physically separated whenever possible from the large pool with a four foot high fence with a self-latching gate. Inspect drain covers at least daily. Properly maintained anti-vortex plates and protective covers are an important part of preventing entrapment. If any drain gates, plates, or covers are missing, the pool should be closed. Personnel should be familiar with the shut-off switch for all pools so they can shut off the pool if necessary. Entrapment is a serious concern. Review the recently revised State swimming pool standards. For children in diapers, leakproof swim diapers and plastic pants should be required. Some pools sell these items in order to encourage use. Sufficient changing areas and trash receptacles will make it easier for parents to change diapers. The Centers for Disease Control at [www.cdc.gov/healthyswimming/](http://www.cdc.gov/healthyswimming/) has educational resources on water sanitation.

## Proper Chemical Precautions



Take proper precautions with chlorine, which is very toxic. If your pool uses chlorine gas, trained personnel should make regular operation and maintenance inspections and perform tank changes when appropriate. A warning signal of chlorine leaks is the obvious strong odor of the gas. Usually a person can sense the presence of chlorine before it does real harm. If personnel suspect a chlorine leak, conduct a test by opening the bottle of an ammonia solution on the area where the leak might be, such as a joint or connection. If chlorine is present, a white mist will form. At least one co-worker should be present while the other worker checks for a leak. Cylinders should be properly chained to prevent falling. When changing a chlorine cylinder, use the new lead washer. If you are in any way uncertain on how to work with chlorine or any other chemical talk with your supervisor first.

For all chemicals, employees should be properly trained and provided appropriate personal protective equipment, such as self-contained breathing apparatus, gloves and eye/face protection. Material Safety Data Sheets should be accessible to employees. Take care to store chemicals properly. Some pool chemical products react violently when other substances, such as oil, gasoline, or even soft drinks come in contact with them. Ensure that chemicals are properly stored so that water will not react with chemicals. Clean spills using the right procedures, tools, and personal protective equipment.

## Reducing Accident Potential

Some simple steps can reduce the risk of life-threatening accidents within the pool. Buoy lines should be in place to mark physical and visual boundaries of the deeper pool areas as well as to assist tired swimmers. Personnel should prohibit swimmers from standing on or playing with buoy lines as this can stretch the lines and cause them to sag and become less visible to swimmers. Employees should check the lines every day from fraying and make sure floats are free of holes and cracks. Ladders and drain covers should be securely fastened and sturdy.

Slips and falls happen frequently at swimming pools. Regular inspections of the deck, bathrooms and other areas for hazards will enable you to detect problems and correct them before an accident

occurs. Glass and other sharp objects should be removed immediately. Electrical hazard potential can be reduced with ground fault circuit interrupters (GFCI). Submerged lights should be inspected frequently since children often explore these areas, like ladders, drains, etc.



If the pool bottom cannot be seen, the pool should be closed. Depth markings should be visible on the deck as well as from inside the pool for every two foot change in depth, uniformly spaced as practical for pools built before 10/1/99 and spaced every 25 feet for pools built after 10/1/99. For all pools, slip resistant “No Diving” signs with the international symbol should be placed where the water is six feet deep or less. If your facility prohibits any diving, then consider signage for all depths, placing signs at least every 25 feet. The decision whether to allow diving from the deck should be carefully considered. In the absence of a diving board and setting aside an area for deck diving, a depth of nine feet may be appropriate but slope and usage are factors. Signs on the deck and around the pool are good ways to warn and inform your guests about conditions and to prevent accidents. Some areas may require signage in another language.

It may be a good idea to administer swim tests before allowing individuals to swim in the deep end. Determine what age children will not be allowed in the pool without an adult. Please see the sample rule in this packet on page 6. The rule should also specify the age of adult. For example, an older brother or sister that is thirteen would probably not be considered an adult to watch over a six-year old.

Breath holding games can quickly lead to an emergency. Games involving holding one’s breath underwater or underwater distance swimming should be discouraged. Breath holding and underwater swimming can cause accidents with better swimmers as well as less experienced ones.

A particularly vulnerable time for swimming pools is when a large number of children visit at once to the surprise of the swimming pool staff. If day care centers or other groups frequent your facility, work with them beforehand to make sure the group leaders and day care professionals understand your facility’s rules and you can adequately prepare for their visit. See the sample procedure on page 5 in this packet that addresses this issue.

### **Lifeguard Preparedness**



Lifeguards need to be prepared, focused and ready to respond to emergencies. A goal for lifeguards is to never have to enter the water to save swimmers. Common-sense prevention is the key and can be achieved with thorough checks of the pool area. Some pools monitor lifeguard scanning times because this action reinforces an important activity. Monitoring an assigned zone and practicing proactive lifeguarding is a key to prevent and quickly react to situations.

Lifesaving equipment, including rescue tubes, backboards, first aid kits, gloves and artificial respiration barrier masks should be inspected daily, marked clearly and kept within reach of the lifeguard. It is a good idea for the lifeguards to wear packs that have barrier masks, gloves and bandages so they have these items readily accessible.

Providing shade, sunglasses, sunscreen, hats, and water will help lifeguards be more alert. Sun and dehydration make for poorer concentration and vision. Breaks should be provided as part of their rotations. For example, some facilities have lifeguards stationed for 30 minutes, then rotate positions and guard the pool for 20 minutes. Then for 10 minutes each hour the pool is cleared. Some facilities are able to rotate the lifeguards in and out of the office. Regular breaks keep the lifeguards mentally prepared for emergencies. This allows them to focus on the task when they are on duty, which is watching the water.

An emergency action plan should be posted and all employees required to know and understand procedures. Think about the different situations your facility is likely to encounter. For example, what would your staff do in the event of a thunderstorm or the facility needed to be evacuated? Lifeguards should practice their lifesaving skills regularly, at least four hours a month. Simulated aquatic emergencies allow lifeguards to practice their responsibilities in the event of an actual emergency. Skills review should include unconscious victim, including extrication of the victim, artificial respiration and cardiopulmonary resuscitation (CPR), spinal injury management, active victims, first aid, and emergency action plans, including facility evacuation. A lifeguard competition is one fun way to practice skills. All staff members should feel comfortable about their roles and responsibilities in the event of an accident.

Evaluate your lifeguards periodically. Give them positive feedback. For example, when they made a rotation, was someone watching their assigned zone at all times? Do they actively enforce the rules? Lifeguards should be alert and professional. Letting them know how they are doing is important for getting the performance you want. Test and retest your lifeguards' skills. In-service training can be educational and fun.

### **Documentation**

Proper and thorough documentation is part of any well-managed facility. It is also helpful to incorporate checklists of operating procedures and duties, as well as documentation of pool maintenance, water quality and chemical checks, guard zones, lifeguard in-service training, and accidents.

### **Final Thoughts**

Every detail in operating a safe aquatic facility cannot be covered here. Pool managers should consider a training program such as the Certified Pool Operator (CPO) Aquatic Facility Operator (AFO) or Pool Operator on Location (POOL). Other educational and professional opportunities are available through the Texas Public Pool Council, National Recreation and Park Society, Texas Recreation and Park Society (TRAPS), and others. Keeping water clear, sanitized, and balanced is a multi-factor endeavor. Managers should sharpen their skills along with the lifeguards, since they can also be required to act in an emergency. There are a number of publications and training classes that can help.

Call your TML Intergovernmental Risk Pool Loss Prevention Representative, who will be glad to assist you with your questions. TML-IRP provides several services to members, such as conducting on-site surveys of facilities along with providing aquatics specialists that conduct lifeguard in-service training. The State of Texas Department of Health has revised its swimming pool codes. The codes can be accessed at [www.tdh.state.tx.us/beh/gsl](http://www.tdh.state.tx.us/beh/gsl). The TML-IRP website also has links to other websites of interest to aquatics personnel.

May 2005

## Sample Policies and Rules

**Note:** The following policies and rules are samples only. Your facility's rules and policies should be adapted for local regulations, codes, manufacturer's recommendations, etc. Each facility will find it has a unique need and must adapt accordingly, while keeping in mind general industry standards.

At a minimum, day care centers should follow state minimum standards. For more information on State requirements for day care centers, see the Texas Department of Family and Protective Services at [www.dfps.state.tx.us](http://www.dfps.state.tx.us), and look for "Rules & Standards". Ratios for Water Activities Services are found in 747.2001 of the "Minimum Standards for Child Care Homes"

### Use of City Swimming Pools by Day Care Centers, Agencies, or Private Swimming Classes

A. For the purpose of this policy, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

Agency means organizations that provide supervised care for children, including, but not limited to, state schools and hospitals, summer day camps, and private schools.

Day Care Center means any person or organization that provides care for six or more children.

Private Swimming Instructors means any person providing swim lessons to an individual or groups either for compensation or for free.

Staff Member means any person who is employed by a day care center or agency which uses a city swimming pool.

B. In order to use a city swimming pool for either recreational swimming or swimming instruction, any day care center or agency or private instruction class shall be registered before the desired time for use with the Director of the Parks and Recreation Department or his or her designee. Facilities and times for use shall be assigned to each group by the Director of the Parks and Recreation Department or his or her designee.

C. The following ratios of supervisory staff to children shall apply to use of city swimming pools by any day care center or agency or private swimming instruction class:

Age of Child – Number of Staff to Number of Children

For Each

0 - 23 months - 1 to 1

2 years - 1 to 2

3 years - 1 to 6

4 years - 1 to 8

5 years - 1 to 10

6 years & older - 1 to 12

D. The following certifications and degrees of participation are required of staff members of day care centers or agencies:

1. All day care center or agency staff members must have the following current certifications:
  - a. Community Cardiopulmonary Resuscitation (CPR) or equivalent (must be renewed every year)
  - b. Community First Aid or equivalent (must be renewed every three years)

2. At all times, at least one staff member from any group must be at least 18 years of age, and shall have the certifications listed in subsection (D) (1), previous.

3. Proof of all certifications for staff members must be on file with the Director of Parks and Recreation, or his or her designee, before a day care center or agency may use a city swimming pool for recreation or instruction.

4. All certified day care center or agency staff shall wear swimsuits and shall participate in the water while supervising the children in the water while supervising children in the ratio stated in the subsection above.

E. Private swimming instruction, whether offered by a day care center or agency or by an individual swimming instructor, shall be scheduled as specified by the Director of the Parks and Recreation Department or by his or her designee. All teachers shall be certified according to standards established by the National Swim School Association or equivalent, and proof of certification must be on file with the Director of the Parks and Recreation Department or his or her designee, before classes may be taught in a city swimming pool. All private instructors shall wear swimsuits and participate in the water while providing swimming lessons.

F. All day care centers or agencies or private swimming instructors shall be assigned to city swimming pools for both recreational and instructional swimming by the Director of the Parks and Recreation or his or her designee. Assignment of facilities will be based on facility size, time of day, bather load, size of the day care center or agency group or private swimming instructor's group, lifeguard staffing, or other relevant criteria.

G. Failure of any day care center or agency or private swimming instructor to comply with the provisions of this policy shall result in denial of access to the pool and may result in revocation of the privilege to use city swimming facilities. If it is shown that the day care center or agency or private swimming instructor had prior knowledge of this policy, revocation will be for a period of 90 days. Subsequent violation of this section by any day care center or agency or private swimming instructor within 24 months shall result in revocation of city swimming pool use privileges for a minimum of one year. Revocation of swimming pool privileges shall be by written direction of the Director of the Parks and Recreation Department.

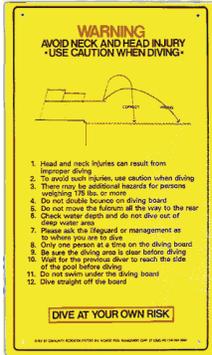
## **Use of City Swimming Pools by Children Unable to Swim**

If any minor child is unable to swim, it shall be unlawful for the parent, guardian or person in custody of such child to allow, suffer or permit such child to go into any swimming pool owned or operated by the city, unless such child is accompanied by a person not less than \_\_ years of age who is capable of supervising and caring for such child, and who has agreed with such parent, guardian or person in custody of such child to be responsible for the safety of such child.

For the purpose of this section, "a minor child who is unable to swim" is a child under the age of \_\_\_ years who is unable to complete, with reasonable ease, any beginner skills test officially endorsed by the American Red Cross or other nationally recognized swimming program.

This section shall not apply to children who are participating in swim classes being conducted by qualified swimming instructors.

## Diving Board Rules



1. Diver must be able to swim unassisted. Staff will require swimming test if questionable
2. No personal floatation devices allowed on diving boards
3. One diver at a time
4. Be sure diving area is clear before diving
5. One bounce only
6. Dive straight off board
7. Do not swim underneath the diving board
8. No open swimming in the diving well, unless diving boards are closed

## Slide Rules



Remember, you are responsible for your safety. Please observe the slide and decide if you can safely participate.

### Caution

For your protection, this slide is not recommended for guests with physical limitations imposed by conditions such as: recent surgery or illness, pregnancy, back, neck, bone, or other injury, high blood pressure, heart conditions, extreme obesity as well as other conditions.

1. Please follow lifeguard instructions
2. Sliders must be able to swim in at least \_\_\_ feet of water
3. Sliders must be at least \_\_\_ inches tall to go down the slide
4. One rider at a time. No doubles or multiple riders allowed
5. Ride on your back with your feet first. No stopping or standing
6. Keep hands inside flume
7. Sliders must exit the slide area immediately after completion of slide
8. This ride is not recommended for guests over 250 pounds

Failure to follow all the rules for this slide can result in serious injury to yourself or others.

# Aquatics Rescue Equipment

The following is provided primarily to non-aquatics personnel to help them purchase aquatics equipment to meet the needs of the facility. It is not a comprehensive list of equipment for a swimming pool. These suggestions are for the major rescue equipment needs. You will find variations on these items, and it is recommended that you carefully consider purchases with the help of your aquatics staff. Local codes may have an impact on purchasing decisions as well.

## Artificial Respiration/CPR Masks (AR/CPR Masks)



These devices protect the rescuer and the victim from diseases and should have a one-way valve that prevents contact with secretions. These barriers also help the rescuer to better perform artificial respiration/rescue breathing. Some devices should not be used again after being used on a victim. Check the manufacturer's recommendation. A mask should be provided to every lifeguard and staff person that is CPR-certified. It is recommended that these staff members carry one in a small pack, with at least one mask in the office area. When staff members have been properly trained in a bag valve, such equipment may be purchased.

## Rescue Tubes



Generally, these tubes are about 40" long and should not have metal buckles that could hurt a victim. Straps can be adjustable for guard comfort. Each lifeguard on duty should wear a rescue tube. Lifeguards should draw in the slack so that the lifeguard does not get the strap caught on the stand and be 'hung' when coming down from the stand. Sometimes sleeves are purchased to prevent staff from 'picking' at the foam tube and damaging it. Rescue cans are featured on popular television shows, but these hard plastic rescue devices are not appropriate for the public swimming pool environment.

## Whistles



Pealess whistles that can still operate with water in them are recommended. Breakaway lanyards will help prevent a victim from choking a lifeguard that is attempting a rescue.

## Gloves



Latex gloves or other gloves that protect from bloodborne pathogens should be worn by the staff when the possibility exists of touching someone else's fluids. Be aware that some people may have an allergy to latex and other types of gloves may have to be provided. A pair should be kept by each lifeguard, preferably in their hip packs. It's a good idea to keep a box in the office. Staff should practice taking gloves on and off and managers should make wearing gloves part of the in-service training on first aid and CPR.

## First Aid Supplies



Various bandages, gloves, wipes, eyewash, tape, burn cream, etc. should be kept in the office area. Ice is good to have for first aid purposes. Staff can keep some bandages in their packs along with gloves. Don't forget items for cleaning up bodily fluids and for properly discarding contaminated items. The kit should be a 24 unit first aid kit and be in a durable weather-resistant container.

### Backboard with straps and head immobilizer



The State rules require backboards at pools that have a diving board, slide, or lifeguard. Backboards can be made of plastic or wood material. Each has advantages and disadvantages. The backboard should have at least three straps that can be buckled or secured tightly with Velcro. (Some backboards have four straps for securing taller or adult victims.) Head immobilizers often come separately and should include two pads for each side of the head, a head strap, and a chin strap. Make sure the immobilizer can be secured tightly to the backboard you have. Some head immobilizers do not work well with certain backboards.

### Ring Buoy with Line



Ring buoys should be displayed prominently when the pool is open, within 20 feet of the pool. The ring buoy should be US Coast Guard approved with an outside diameter of 15 to 24 inches. The ring buoy should also have a 1/4 inch to 3/8 inch diameter throwing rope at least the length of two thirds the maximum width of the pool.

### Shepherd's Crook/Rescue Pole



A shepherd's crook should be mounted within 20 feet of the pool and where the people can see it when the pool is open. The pole should be of light, non-electrically conducting material such as fiberglass. It should be non-telescopic, and not less than 12 feet long. It should also have a blunted end with a body hook or shepherd's crook.

The State codes currently state that all pools less than 2000 square feet of water surface area must have at least one reaching pole and throwing rope with ring buoy. An additional set of this equipment is required if the pool is between 2000 and 4000 square feet. For pools larger than 4000 square feet an additional set of equipment should be required for each additional 6000 square feet of water surface area or portion over 4000 square feet. All of this equipment should be placed conspicuously and within 20 feet of the pool.



### Oxygen, Automatic Defibrillators, Suction Units, Cervical Extrinsic Collars, etc.

Aquatics rescue has changed rapidly in the past ten years. The main issue with having any piece of equipment is to make sure that the staff are properly trained in its use. Currently there are no laws that require the use of such equipment. Your lifeguard certification agency might encourage the use of the equipment, you may find this equipment to be helpful, or feel that your standards require such use, but your aquatics professional should be involved with deciding if the equipment is needed by your facility.



May 2005

Note: Texas Department of Health codes for swimming pools can be accessed on the internet at [www.tdh.state.tx.us/beh/gsl/](http://www.tdh.state.tx.us/beh/gsl/). There are many useful links to information regarding swimming pools at the Department of Health site.

March 21, 2000

## Epilepsy Association Seminar On Seizures

**Presenter:** Shea Godwin, Director of Education and Development

**Attendee:** Norm Matzl, NASCO

**Types of Seizures:** Seizure disorders take several forms, depending on where in the brain the malfunction takes place and how much of the total brain area is involved.

Since these seizure disorders are so different in their effects, they require different kinds of action from the public. Some require no action at all.

**Absence Seizures** - (previously called Petit Mal)

A blank stare, beginning and ending abruptly, lasting only a few seconds, most common in children. May be accompanied by rapid blinking and/or some chewing movements of the mouth. Child or adult is unaware of what's going on during the seizure, but quickly returns to full awareness once it has stopped.

**Complex Partial Seizures** - (previously called psychomotor or temporal lobe)

Usually starts with a blank stare, followed by chewing, followed by random activity. Person appears unaware of surroundings, may seem dazed and mumble. Unresponsive. Actions clumsy, not directed. May pick at clothing, pick up objects, or try to take clothes off. May run, appear afraid. May struggle or flail at restraint.

**Generalized Tonic Clonic** - (previously called grand mal)

Sudden cry, fall, rigidity, followed by muscle jerks, shallow breathing or temporarily suspended breathing, bluish skin, possible loss of bladder or bowel control, usually lasts a few minutes. Normal breathing then starts again. There may be some confusion and/or fatigue followed by return to full consciousness.

**First Aid for Seizures:**

**Absence Seizure** - No first aid necessary, but if this is the first observation of this seizure(s), medical evaluation should be recommend.

**Complex Partial Seizure** - Speak calmly to reassure the person having the seizure. Guide gently away from obvious hazards. Stay with the person until complete awareness of the environment returns.

**Generalized Tonic Clonic Seizure** - Look for medical identification. Protect from nearby hazards. Protect the head from injury, cushion the head and remove glasses. Turn person on their side to keep the airway clear, unless injury exists. Reassure the person as consciousness returns.

**NOTE: If multiple seizures or if a single seizure lasts longer than 5 minutes, call an ambulance immediately. If a person is pregnant, injured, or diabetic, call for aid at once.**

#### **IMPORTANT - WHAT NOT TO DO**

- Don't put any hard implement in the mouth
- Don't try and hold the tongue - it can't be swallowed
- Don't try to give liquids during or just after a seizure
- Don't use artificial respiration unless breathing is absent after muscle jerks subside, or unless water has been inhaled
- Don't restrain the person during the seizure - protect them

#### **SEIZURES IN THE WATER**

If a seizure occurs in the water, the person should be supported in the water with the head tilted so his face and head stay above the surface. He should be removed from the water as quickly as possible following the seizure. Once on dry land, he should be examined and, if he is not breathing artificial respiration should be begun at once. Anyone who has a seizure in the water should be taken to an emergency room for a careful medical checkup, even if he appears to be fully recovered afterwards. Heart or lung damage from ingestion and/or inhalation of water is a possible hazard in such cases.

#### **Important Statistics to Note:**

- Two point three (2.3) million Americans have Epilepsy
- Seizures are like earthquakes in that they are not predictable
- Epilepsy can be hereditary
- Generalized seizures involve the entire brain and can include loss of consciousness
- Partial seizures involve one part of the brain
- Only 44% of the people that are known to have seizures can control the event with medication

#### **Symptoms of a Seizure:**

- Blinking or chewing at inappropriate times
- Blackouts - confused memory, short clusters of loss time
- Occasional fainting spells
- Sudden falls
- Clusters of jerky movements
- Convulsions

#### **Trigger Mechanisms to Seizures:**

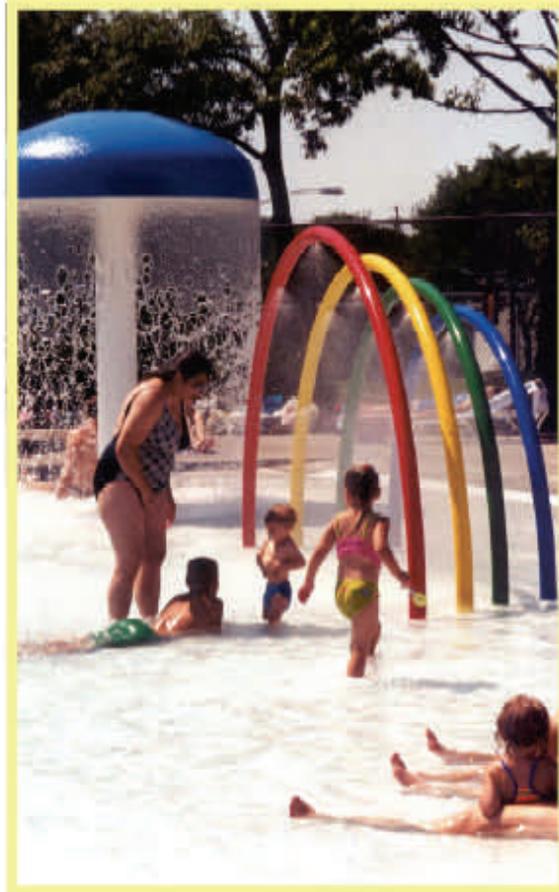
- Missed medication (the number one cause)
- Dehydration
- Photosensitive
- Extreme hot or cold
- Lack of sleep
- Hormonal changes, pre-menstrual
- Strobe lights
- Color yellow
- Blinking colored lights
- Stress and anxiety
- Certain smells
- Bell chimes

**Seizure Record Form: The following list of things to observe prior to and during a seizure will be very helpful to family and medical personnel**

- What took place before the seizure
- What was the person doing at the time of the seizure
- What was the exact time of day
- What called your attention to the person (cry out, fall, stare, head turn, etc.)
- How did the seizure develop (suddenly, gradually, one part of the body, etc.)
- Did the person's body become stiff
- Were there jerks, twitches, or convulsions
- What part of the body moved first
- Did the eyelids flutter or the eyes roll
- Did the skin show changes (flushed, clammy, blue, etc.)
- Did the breathing change
- Did the person talk or perform any actions during the seizure
- Did the person become drowsy or sleepy afterward
- Did the person urinate or have a bowel movement during the seizure
- **How long did the seizure last (this is very important)** - not including the sleepy time that followed a seizure

# Fecal Accident Response Recommendations for Pool Staff\*

What do you do when you  
find poop in the pool?



\*Check for existing guidelines from your local or state regulatory agency before use. CDC recommendations do not replace existing state or local regulations or guidelines.

- These recommendations are for responding to fecal accidents in chlorinated recreational water venues.
- Improper handling of chlorine-based disinfectants could cause injury. Follow proper occupational safety and health requirements when following these recommendations.

# Important background info...

## WHAT ARE RECREATIONAL WATER ILLNESSES (RWIs)?

What is the first thing that pops into your head when you think about water safety? Drowning? Slipping? Lightning? All good answers, and all are very important. But, did you know that germs can contaminate swimming water? These germs cause RWIs that have made many people sick.

RWIs are caused by waterborne germs such as "Crypto" (KRIP-toe), short for *Cryptosporidium*, *Giardia* (gee-ARE-dee-uh), *E. coli* 0157:H7, and *Shigella* (Shi-GEL-uh).

## HOW ARE RWIs SPREAD?

RWIs are spread by accidentally swallowing pool water that has been contaminated with germs that cause diarrhea. How? If someone has diarrhea, that person can easily contaminate the pool. Think about it. Pool water is shared by every swimmer and is not sterile.

The good news is that germs causing RWIs are killed by chlorine. However, chlorine doesn't work right away. It takes time to kill germs and some germs like Crypto can live in pools for days. Even the best maintained pools can spread illness.

## SHOULD ALL FECAL ACCIDENTS BE TREATED THE SAME?

No.

A diarrheal fecal accident is a higher risk event than a formed stool accident. With most diarrheal illnesses, the number of infectious germs found in each bowel movement decreases as the diarrhea stops and the person's bowel movements return to normal. Therefore, a formed stool is probably less of a risk than a diarrheal accident that you may not see.

A formed stool may contain no germs, a few, or many that can cause illness. You won't know. The germs that may be present are less likely to be released into the pool because they are mostly contained within the stool. However, formed stool also protects germs inside from being exposed to the chlorine in the pool so prompt removal is necessary.

### **Germ Inactivation Time for Chlorinated Water\***

Germ	Time
<i>E. coli</i> O157:H7 Bacterium	Less than 1 minute
Hepatitis A Virus	about 16 minutes
<i>Giardia</i> Parasite	about 45 minutes
<i>Cryptosporidium</i> Parasite	about 9600 minutes (6.7 days)

\*1ppm (1mg/L) chlorine at pH 7.5 and 77°F (25°C)

## SHOULD YOU TREAT A FORMED FECAL ACCIDENT AS IF IT CONTAINS CRYPTO?

No. In 1999, pool staff volunteers from across the country collected almost 300 samples from fecal accidents that occurred at waterparks and pools. CDC then tested them for Crypto and *Giardia*. None of the sampled fecal accidents tested positive for Crypto but *Giardia* was found in 4.4% of the samples collected. These results suggest that formed fecal accidents pose only a very small Crypto threat, but should be treated as a risk for spreading other germs (such as *Giardia*). Remember a diarrheal fecal accident is considered to be a higher risk event than a formed stool fecal accident.

# What do I do about...

## formed stool in the pool?

Formed stools can act as a container for germs. If the fecal matter is solid, removing the feces from the pool without breaking it apart will decrease the likelihood of pool contamination. In addition, RWIs are more likely to be spread when someone who is ill with diarrhea has a fecal accident in the pool.

## diarrhea in the pool?

Those who swim when ill with diarrhea place other swimmers at a significant risk for getting sick. Diarrheal accidents are much more likely than formed stool to contain germs. Therefore, it is important that all pool managers stress to patrons that swimming when ill with diarrhea is an unhealthy pool behavior.

1. For both formed stool and diarrhea, direct everyone to leave the pool. If you have multiple pools that use the same filter—all pools will have to be shut down. Do not allow anyone to enter the contaminated pool(s) until all decontamination procedures are completed.
2. For both formed stool and diarrhea, remove as much of the fecal material as possible using a net or scoop and dispose of it in a sanitary manner. Clean and disinfect the net or scoop (e.g., after cleaning, leave the net or scoop immersed in the pool during disinfection).

VACUUMING STOOL FROM THE POOL IS NOT RECOMMENDED.

3. Raise the chlorine to 2 ppm (if less than 2ppm), and ensure the pH is between 7.2 - 7.5. This chlorine concentration was selected to keep the pool closure time to approximately 30 minutes. Other concentrations or closure times can be used as long as the CT inactivation value<sup>†</sup> is kept constant (see back page).
4. Maintain the chlorine concentration at 2.0 ppm, pH 7.2 - 7.5, for at least 25 minutes before reopening the pool. State or local regulators



may require higher chlorine levels in the presence of chlorine stabilizers such as chlorinated isocyanurates. Ensure that the filtration system is operating while the pool reaches and maintains the proper free available chlorine concentration during the disinfection process.

3. Raise the free available chlorine concentration to 20 ppm\* (mg/L) and maintain the pH between 7.2 and 7.5. This chlorine and pH level should be sufficient to inactivate *Cryptosporidium* and should be maintained for at least 8 hours, equivalent to a CT inactivation value of 9600.
4. Ensure that the filtration system is operating while the pool reaches and maintains the proper chlorine level during disinfection. If necessary, consult an aquatics professional to determine and identify the feasibility, practical methods, and safety considerations before attempting the hyperchlorination of any pool.
5. Backwash the filter thoroughly after reaching the CT value. Be sure the effluent is discharged directly to waste and in accordance with state or local regulations. Do not return the backwash through the filter. Where appropriate, replace the filter media.
6. Swimmers may be allowed back into the pool after the required CT value has been achieved and the chlorine level has been returned to the normal operating range allowed by the state or local regulatory authority.

For both formed stool and diarrhea, establish a fecal accident log. Document each fecal accident by recording date and time of the event, note whether formed stool or diarrhea, and note the chlorine levels at the time of observation of the event. Before reopening the pool, record the pH, the procedures followed in response to the fecal accident (including the process used to increase chlorine levels if necessary), and the contact time.

<sup>†</sup> CT refers to concentration (C) of free available chlorine in ppm multiplied by time (T) in minutes. If pool operators want to use a different chlorine concentration or inactivation time, they need to ensure that CT values always remain the same (See Figure 1 for examples).

\* Many conventional test kits cannot measure free available chlorine levels this high. Use chlorine test strips that can measure free available chlorine in a range that includes 20ppm (such as those used in the food industry) or make dilutions for use in a standard DPD test kit using chlorine-free water.

# Pool Disinfection time...

How long does it take to disinfect the pool after a fecal accident? This depends on what type of fecal accident has occurred and at which chlorine levels you choose to disinfect the pool. If the fecal accident is formed stool, follow Figure 1, which displays the specific time and chlorine level needed to inactivate *Giardia*. If the fecal accident is diarrhea, follow Figure 2, which displays the specific time and chlorine levels needed to inactivate Crypto.

**Figure 1-Giardia Inactivation for Formed Fecal Accident**

Chlorine Levels (ppm)	Disinfection Time*
1.0	45 minutes
2.0	25 minutes
3.0	19 minutes

\*These closure times are based on a 99.9% inactivation of *Giardia* cysts by chlorine, pH 7.5, 77° F (25°C). The closure times were derived from the Environmental Protection Agency (EPA) Disinfection Profiling and Benchmarking Guidance Manual. These closure times do not take into account "dead spots" and other areas of poor pool water mixing.

**Figure 2-Crypto Inactivation Time for Diarrheal Accident**

Chlorine Levels (ppm)	Disinfection Time*
1.0	6.7 days
10	16 hours
20	8 hours

**CT value** is the concentration (C) of free available chlorine in ppm multiplied by time (T) in minutes (CT value = C x T). The CT value for *Giardia* is 45 and the value for Crypto is 9600. If you choose to use a different chlorine concentration or inactivation time, you must ensure that the CT values remain the same. For example, to determine the length of time needed to disinfect a pool at 15 ppm after a diarrheal accident use the following formula:  $C \times T = 9600$ . Solve for time:  $T = 9,600 \div 15 \text{ ppm} = 10.7 \text{ hours}$ . It would take 10.7 hours to inactivate Crypto at 15 ppm. You can do the same for *Giardia* by using the CT of 45.



## ~ Pool Closures ~

Fecal accidents are a concern and an inconvenience to both pool operators and patrons. Pool operators should carefully explain to swimmers the need to close the pool in response to a fecal accident for their own health and safety. Understanding that pool closure is necessary for proper disinfection and protection of the health of swimmers is likely to promote support rather than frustration. Pool closures allow chlorine to do its job and protect your swimmers from RWIs.

For more information go to:

[www.healthyswimming.org](http://www.healthyswimming.org)



# LIGHTNING SAFETY TIPS

These tips focus on people who may be caught outdoors when lightning is occurring, such as at parks, ball fields, and swimming pools.

How likely is it that you could be struck by lightning? This is a question that has received many varied answers from different statistics. There is no exact answer to this question. The more correct response is that it depends on your activities and the climate area in which you live. If you are a person that tends to stay indoors and lives in a temperate climate, your chances of being struck by lightning are greatly reduced, versus someone who plays golf and lives in a climate where there are often storms accompanied by lightning.

If you are caught outdoors when lightning is occurring it is important to:

- Avoid contact with water
- Avoid high ground
- Avoid open spaces
- Avoid metal objects (fences, machinery, tools, golf carts, metal bleachers-etc)
- Avoid waiting under tall trees, under umbrellas, or near power lines

When possible, seek shelter in a building or a vehicle with the windows completely shut. Stay away from trees, canopies, or picnic/rain shelters.

If you are caught outdoors and lightning is striking nearby, crouch down - putting your feet together, and avoid proximity to other people (minimum of 15 ft.).

## Outdoor Sports Events

It is a good idea to have someone designated to monitor weather conditions. Ideally this should be done 24 hours prior to the event. It is also a good idea to have a portable weather radio for up-to-the-minute reports. Some parks departments utilize portable lightning detectors that provide an alarm when lightning has struck in the area.

To simplify any confusion, a make-up date for any activities that may have to be postponed should be set prior to the event. It is also important to have a safe shelter to retreat to, and a prior understanding of where the shelter is located in case of a sudden storm. Wait at least 30 minutes after the last thunder or lightning was seen before activities resume.

The National Lightning Safety Institute motto is: "If you can see it (lightning) flee it; if you can hear it (thunder), clear it."

## Swimming Pools

Keep in mind that swimming pools are connected to a much larger surface area via underground water pipes, gas lines, electric and telephone wiring, etc. Lightning strikes to the ground anywhere on this metallic network may induce shocks elsewhere. For indoor pools, a licensed electrician or engineer knowledgeable in bonding and grounding should be consulted.

Every pool should designate a person to be the bad weather lookout. Keep a portable radio close at-hand for local current weather conditions. If threatening weather approaches, you should have an evacuation plan in place. This plan should include how to get everyone out of the water and into a sheltered area as quickly and as orderly as possible. Lightning is unpredictable and being prepared and responding quickly are your two best defenses.

**When should I clear the pool?** This is a question that the National Lightning Safety Institute (NLSI) addresses. The NLSI recommends that once thunder and/or lightning is first noticed, use a “Flash-To-Bang method”. This determines a rough distance and speed, and measures the time from seeing lightning to hearing associated thunder. For each 5 seconds from F-B (the flash of lightning, to the bang of the thunder), lightning is 1 mile away. Thus a F-B of 10 seconds = 2 miles; 15 seconds = 3 miles; 20 seconds= 4 miles—etc. **At an F-B count of 30, the Pool should be evacuated.** People should be directed to a nearby shelter. Pool activities should not resume until 30 minutes after the last thunder is heard.

### **First-Aid For Lightning Victims**

If someone in your presence is struck by lightning, it is safe to touch them to administer medical treatment. You are not at risk with helping since individuals struck by lightning do not carry an electrical charge.

You should immediately call 911. The rescuer should also keep in mind their safety if a continuing storm is threatening. If the victim does not appear to be suffering complications from the strike, the rescuer should not be afraid to move them to safer ground.

If the victim is not breathing, start mouth to mouth resuscitation. If you do decide to move the victim to safer ground, give a few quick breaths prior to moving them. Determine if there is a pulse. If there is no pulse, start cardiac compressions as well. Getting the victim to emergency treatment is critical.

Lightning is an unpredictable force that should be taken seriously. Your best defenses against lightning are to avoid potential situations and exposures that put you in danger. Staying alert of weather situations around you that may have lightning involved, and having a quick plan of response to seek shelter can help to keep everyone safe.

For more information on lightning, [www.lightningsafety.com](http://www.lightningsafety.com) has many resources, including more technical ones.

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## Valve Maintenance Programs

Valve (valv), *n* – a device that halts or controls the flow of fluid in a pipeline; a device that makes fluid act differently from the way it would act if it were traveling along a pipeline without a valve.

Valves are the most important part of any piping and pumping system because they direct the flow of fluids and regulate temperatures. Properly used and maintained, they can improve process efficiency and lower costs. It is wise to apply proper valve maintenance routinely in ways that improve valve life cycle and operating efficiency.

One of the beneficial by-products of routine valve maintenance is the reduction of injuries by employees trying forcing stuck valves to open or shut in unsafe ways. Another would be the decrease in down time for equipment and services supplied to citizens. An annual valve maintenance program would reduce a number of loss exposures.

An annual valve maintenance program is best implemented in steps, starting with the most critical valves that are important to an operation or process. Develop a list and identify these valves with a tag, then schedule them for annual preventative maintenance. The preventive maintenance would consist of cleaning (stem shaft), adjusting packing as needed, lubrication (zerks, bearings, and stem) and cycling the valve all the way open or shut and returning it to its original position. Later more valves can be added (as identified) to ensure they receive maintenance until eventually all valves are on the list.

Before changing a valve position, review proper safety procedures, such as opening air bleed valve, turning off the pump, and lockout/tagout procedures. Refer to the manufacturer's recommendations to prevent injury and damage.

Maintenance documentation can be kept simple. Identify the valve, its location, date of last maintenance, and name of person completing the action.

### EXAMPLE:

Valve	Location/System	Date Completed	Completed by
V-1	Swimming Pool/#2 Pump discharge	7/26/04	John Doe, Public Works Supervisor

For easier identification, tag or label a valve and refer to a valve sequence chart.

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