

Healthy Swimming

For Aquatics Staff: Twelve Steps for Prevention of Recreational Water Illnesses (RWIs)



The following information about recreational water illnesses and ways to help prevent them is for people who own, manage, operate, or work at pools, waterparks, hot tubs, and spas.

Twelve steps for reducing germ contamination of swimming pools.

How can you protect swimmers from recreational water illnesses (RWIs) without restricting access and enjoyment? Consider how pool operators deal with other risks that have been identified at the pool. Problems that have been on deck for years include drowning, injuries, bad weather, and blood spills. Pool operators have adopted risk management strategies that rely on state-of-the-art safety equipment and intensive training of staff. Lifeguards are trained in drowning prevention, rescue, first aid, and policies related to weather use and injury prevention. RWI prevention is no different. It will take a combination of equipment and design

improvements, new thoughts on pool policies and management, and critical training and education of staff. However, the responsibility for preventing RWIs does not fall on pool staff alone. Swimmers need to be educated about the necessary behavior changes that they need to make in order to reduce the spread of RWIs. Because this is such a complex problem, pool staff, swimmers, and health departments all have a role to play in reducing the spread of RWIs. Integrating the 12 steps for RWI prevention into your current risk management program should help reduce the risk of your pool spreading RWIs.

12 Steps for RWI Prevention for Pool Staff

- Step 1: Lead your staff.
- Step 2: Develop partnerships.
- Step 3: Educate pool staff.
- Step 4: Educate swimmers and parents.
- Step 5: Maintain water quality and equipment.
- Step 6: Evaluate aquatic facility design.
- Step 7: Institute disinfection guidelines.
- Step 8: Evaluate hygiene facilities.
- Step 9: Develop a bathroom break policy.
- Step 10: Create a special policy for large groups of young children.
- Step 11: Post and distribute health information.
- Step 12: Develop an outbreak/emergency response plan.

STEP 1: Lead your staff.

Every aquatic facility is different with distinct priorities that have to be juggled on a daily basis while working within limitations on staff and resources. However, all aquatic facilities make safety and health a top priority.

Making a choice to integrate an RWI protection plan into an existing facility risk management plan is the single greatest decision you can make to protect swimmers from RWIs. Take the lead, outline your vision, show your commitment to your staff, and put yourself at the forefront of the

aquatics field. Decide that RWI protection is a priority; back it up with resource investment and commitment, and that will set the tone for the rest of the staff.

Determine which of the Healthy Swimming recommendations are feasible to implement in your facility with available resources.

Investing heavily after the outbreak occurs, a common occurrence, is great but it would have been better for the public's health and more cost-effective if this were done before the outbreak occurred.


STEP 2: Develop Partnerships

Building a communication bridge to your health department and other aquatic facilities is a great way to get information about other outbreaks occurring in your community. If you start to hear about outbreaks associated with other pools, daycares, schools, etc., where your swimmers attend, then take proactive measures and increase vigilance to protect your pool. Increase education of staff, swimmers, and visiting daycare groups. If a pool closes because of a suspected outbreak, that does not mean that all of the swimmers should descend on

your pool without giving them some education about RWI prevention. Work with your health department to get the word out when a potential RWI outbreak is occurring. Remind them that one of the messages to send out whenever a diarrheal outbreak is occurring is "don't swim when ill with diarrhea." Use your communication networks and the media to alert patrons that they should not be swimming if they are ill with diarrhea. Protect your facility, make the contacts early, and build a communication network so that you are aware of the health status of your community at all times.

STEP 3: Educate pool staff.

1. Ensure that the pool operator, at a minimum, has taken part in a standardized training course given by aquatics professionals.
2. Integrate the “P-L-E-As” for Healthy Swimming (see poster on next page) into staff training.
3. Promote good hygiene and safety around the pool by knowing the “P-L-E-As” for Healthy Swimming.
4. Inform parents that unhealthy behaviors at poolside and elsewhere are no longer acceptable. Parents told CDC that they wanted to be able to rely on the lifeguards for help and enforcement.
5. Ensure that all staff know the critical role of water testing, proper testing methods, the importance of dual chlorine and pH control (fact sheet at www.cdc.gov/healthyswimming/ph_chlorine.htm) and how to respond if disinfectant levels are not adequate.
6. Make sure that staff can explain, in a way that is inoffensive and acceptable to parents, why behaviors such as using public tables and chairs for diaper changing is a health risk. This may require that an older, more experienced staff member be assigned to the kiddie pool.
7. Distribute educational materials, such as Healthy Swimming aquatics staff newsletters, fact sheets, and Q & A's.

A blue starburst graphic with a white border, containing text about maintaining pool water quality.

Maintaining pool water quality according to existing public health requirements will prevent the spread of most recreational water illnesses (RWIs).



STEP 4: Educate swimmers and parents.

1. Educate your season pass holders. You may choose to begin by educating them first since they may feel more ownership of the facility and want to make the facility as safe as possible.
2. Educate your daily patrons. You might hand out prevention messages ("P-L-E-As" for Healthy Swimming or CDC brochure) as patrons enter the pool or park area.
3. Remember that people care about their health, so a lead-in might be: "To ensure the health and safety of all our visitors, we ask that you remember to follow these easy "P-L-E-As" for Healthy Swimming."
4. Consider implementing a short safety and RWI orientation for larger groups before they enter the pool complex. This is especially important for groups with young children (see step ten).

They did it... Why can't you?


The Air Force Outdoor Recreation Program operates 186 swimming pools around the world. We needed to stay proactive in keeping our pools a safe and fun place for our customers. At the National Aquatics Conference, CDC gave an excellent presentation on RWIs and the Healthy Swimming Project. As a result, we issued mandatory guidance to all of our installations addressing participation in the Healthy Swimming Project. CDC's materials help the staff understand the need for this initiative. The materials are high quality and easy to use. This is a great example of how the Internet can really help get materials into the hands of the front-line pool operators. We had a very successful swim season in 2002 so any concerns that we might "scare away" customers by sharing information on RWIs are unwarranted.

—Phillip Heeg, Manager, Air Force Outdoor Recreation Program

Healthy Swimming

Six "P-L-E-As" for Protection
Against Recreational Water Illnesses (RWIs)

- PLEASE** don't swim when you have diarrhea...this is especially important for kids in diapers.
- PLEASE** don't swallow the pool water.
- PLEASE** practice good hygiene. Take a shower before swimming and wash your hands after using the toilet or changing diapers.
- PLEASE** take your kids on bathroom breaks or check diapers often.
- PLEASE** change diapers in a bathroom and not at poolside.
- PLEASE** wash your child thoroughly (especially the rear end) with soap and water before swimming.



For more information visit:
www.healthyswimming.org

*Poster is available at www.healthyswimming.org

STEP 5: Maintain water quality and equipment.

Keep the chemical feed equipment and chemicals at optimal levels within state and local government regulations.

This includes maintaining the disinfectant at regulated levels, **usually 1-3 ppm**; optimal pH (7.2-7.8); alkalinity (80-120 ppm); calcium hardness (200-400 ppm), and total dissolved solids (below 2500mg/ liter).

As you know, poor pH control can compromise chlorine’s effectiveness as a disinfectant. Make sure all of your staff realize this. Remember that maintaining recommended chlorine and pH levels will prevent most bacterial outbreaks such as those caused by *E. coli* O157:H7.

When germs get into the scum (biofilm) layer, they can be protected from disinfection. Scrubbing the pool or spa to break up that scum layer is important. Don’t let germs take up residence in your pool or spa.

Be sure to monitor chlorine regularly where the chlorine is needed—at poolside. You should be able to prevent waterparks, pools, or hot tubs from

running out of chlorine through regular monitoring, and pumphouse and systems checks.

Ensure regular and thorough maintenance of the recirculation and filtration equipment to provide maximum filtration.

Water Quality	pH
Poor Chlorine Disinfection Eye Irritation Skin Irritation	> 8.0
Most Ideal for Eye Comfort and Disinfection	7.8
	7.6
	7.2
Eye Irritation Skin Irritation Pipe Corrosion	< 7.0

STEP 6: Evaluate aquatic facility design.

Some pools and waterparks have already started to redesign their facilities for the purpose of illness protection.

If you are building a new waterpark, get feedback from your industry colleagues and public health experts about the safety and protection features you need to consider in the design stage.

Pool designers will respond to you, their customer, if you are clear that your public health needs are a high priority and you consider it an investment in safe operations.

Evaluate your filtration system.

If your kiddie pool filtration system is connected with other pools, fecal contamination can be dispersed from the kiddie pool to the other pools. The best situation is one in which there is a separate filtration system for the kiddie pool.

Increasing the water turnover rates in kiddie pools may decrease the length of time that swimmers are exposed to contaminating germs. This decision needs to be made in collaboration with your state and local regulators and design consultants to avoid causing suction injuries. This may require installation of antivortex drain covers (with no top openings and automatic cut-off valves) or other technology.

When it comes to the spread of some illnesses, filtration can help but, remember it takes substantial time to completely filter the pool.



Evaluate your form of disinfection.

There is a great deal of interest in new technologies that disinfect pool water such as ozone, ultraviolet (UV) irradiation, and mixed oxidants.

They look promising. Seek out the experts for the latest information but keep in mind that you are still going to need some residual disinfectant in the pool when using ozone and UV. Dropping disinfectant in the pool may put swimmers at greater risk if the pool becomes contaminated.

Evaluate your hygiene facilities (toilets, diaper-changing stations, showers).

Are there adequate numbers? Are they safe? Are they close to where they are needed? Address these issues in the design phase if possible. Your pool will continue to be used as a restroom if you are not proactive in assuring that patrons have what they want. Down the drain versus in your pool is a major RWI prevention measure. See 'Step 8' for more information on hygiene facilities.

STEP 7: Institute disinfection guidelines.

Even if you are not required to do so, have a written fecal accident response policy and keep records of all fecal accidents, chlorine and pH level measurements, and any major equipment repairs or changes.

This may help you respond more efficiently to any problems. You may have little control over a toddler's soiling your kiddie pool, but you do have control over how you document and respond to this occurrence.

Also put policies in place for responding to vomiting and body fluid spills. Check your state and local codes for existing information or CDC's Healthy Swimming website (www.healthyswimming.org) for guidance.

Develop training materials for staff so that they can respond appropriately, document the response, and communicate to patrons why, under some circumstances, it is critical to close the pool for some period of time.

It pays to be proactive.



For detailed disinfection guidelines go to:
<http://www.cdc.gov/healthyswimming/fecalacc.htm>

STEP 8: Evaluate hygiene facilities.

In CDC's parent interviews, parents uniformly said they change diapers at poolside because changing rooms were unclean, poorly maintained, and/or had inadequate diaper-changing facilities.

Here are some questions that you could ask to improve your facilities:

- Do you have an adequate number of facilities?
- Are they safe?
- Are the facilities close to the pool?
- Are the facilities well maintained (stocked and cleaned)?
- Would you walk barefoot in them as your patrons do?
- Are the diaper-changing facilities usable, safe, and close to hand-washing facilities?
- Do you have showers with warm water?

If possible, address these issues in the design phase.

Ask your patrons for feedback. Your pool will continue to be used as a restroom if you are not proactive in assuring that patrons have what they want.

If your facility is large enough, determine the utility of hiring a person just to maintain the restrooms or consider remodeling your diaper-changing stations. Both



improvements may be good investments if they increase the number of parents and children who use them.

Install diaper-changing cabanas with soap and running water close by the kiddie pools. This is a great way to discourage parents from changing diapers on tables or lounge chairs. It can also help mothers who are also keeping an eye on other kids.

Although difficult, keep pushing to get swimmers to shower (yes, a soap and water, back-end shower) before using the pool. Dirt, sweat, and fecal matter should go down the drain, not into your pool.

Train staff to recognize risky behavior such as changing a child on public tables or chairs. Have them educate patrons about why this is a health risk.

STEP 9: Develop a bathroom break policy.

CDC hopes to heighten awareness about the transmission of recreational water illnesses (RWIs).

Parents will continue to want to see regular chlorine testing and appropriate disinfection following fecal accidents.

Therefore, why not reduce fecal accidents by helping parents get their children to the bathroom by scheduling an hourly break for disinfectant testing and bathroom use?

Staff should let patrons know that this break provides optimal timing for bathroom use.

Additionally, to prevent transmission of

germs, you should ensure that the bathrooms are clean, that they are stocked with toilet paper, and that they have ample soap for hand washing.

If parents ask, tell them this policy not only reduces fecal contamination but also should reduce the amount of urine in the pool that uses up disinfectant that could be killing germs. All of the combined chlorine that stings patrons' eyes and brings in complaints could be reduced if patrons start urinating in the restroom rather than in the pool.

STEP 10: Create a special policy for large groups of young children.

If you allow large groups of diaper/toddler-aged children in the pool (e.g. from daycare centers) consider:

- requiring RWI orientation training for the care providers and make sure they understand that your pool, like most

daycare centers, also excludes children ill with diarrhea.

- keeping diaper/toddler-aged children in the pools specifically designated for them.

STEP 11: Post and distribute health information

Consider providing signage in a conspicuous location before pool entry. Rotate this information and keep it updated.

The sign might state:

- Don't swim when you have diarrhea.
- Don't swallow the pool water.
- Practice good hygiene. Take a shower before swimming and wash your hands with soap and water after using the restroom or changing diapers.
- Take your kids on bathroom breaks or change diapers often.
- Change diapers in the bathroom and not at poolside.
- Wash your child thoroughly (especially the rear end) with soap and water before swimming.



Encourage swimmers to shower with soap and water before entering the pool. This could reduce the risk of pool contamination by removing invisible fecal matter from their bottoms. A quick rinsing over a swimsuit with cold water will not do much good. Facility staff, managers, and home pool owners should consider having hot water available in shower facilities used by swimmers.

Post your last pool inspection report and let your customers know you intend to do your part to protect their health. Restaurants do it and many people choose to patronize the “best performers.”

The recreational water sector is not the only group that needs to participate in the educational process. Parents have told CDC that they would like to receive this message from various sources before they arrive at the pool. Public health officials have already begun to educate swimmers by making prevention messages available to the general public.

STEP 12: Develop an outbreak /emergency response plan.

The best advice is to be prepared. If an outbreak does occur, are you ready? Do you have a plan?

Most pool staff already have a risk management plan for injuries and drowning, but many do not have plans for managing a recreational water illness (RWI) outbreak.



- Develop a policy to follow in the event that you begin getting calls from the public, or the health department starts an investigation. Part of this plan should include a strategy to communicate with the local health department and media.
- Appoint a spokesperson to ensure that a consistent response is given to outside sources (callers, media, health department, and others), and that these sources have a clear contact person.
- Talk to your colleagues who have experience. It can be difficult if you are not ready to speak with reporters and an outbreak occurs.
- Develop a communication network. If you hear about problems let your health department know. Alert other pool operators in the community of problems as well.
- Collaborate with your local health department. This is always important, plus the investigation may indicate a source unrelated to the pool.
- Support the investigation. If the pool is the source of the outbreak, the investigation can often reveal how or why illness was transmitted. This information leads to better illness prevention strategies that can help everyone.

If there is an RWI outbreak, please let investigators know about the CDC outbreak toolkit found at:
www.cdc.gov/healthyswimming/outbreak