Welcome to the
CDC’s Model Aquatic Health Code Network Webinar

Healthy and Safe Swimming Week Showcase –
Ensuring Aquatic Health in Your Community

Monday, May 24, 2021
1:00 pm ET

Listen via your computer speakers or
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Questions may be submitted/upvoted via the Q&A box.
This webinar is being recorded.
Today's Presenters

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Council for the Model Aquatic Health Code
Healthy and Safe Swimming Week 2021: Outbreaks Associated with Treated Recreational Water—United States, 2015–2019

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Waterborne Disease Prevention Branch

MAHC Network Webinar
May 24, 2021
Healthy and Safe Swimming Week (HSSW) 2021 Communications Outreach

- Morbidity and Mortality Weekly Report out 5/21
- Updated materials
  - HSSW 2021 campaign webpage
  - HSSW Toolkit for partners
  - Diarrhea and Swimming webpage
  - Crypto and *Giardia* fact sheets
  - Posters and fact sheet webpages; updated chemical safety posters
- Social media
  - Buttons and banners
  - Social media messages and graphics to be disseminated by various CDC channels
- Promotion and outreach
  - Adobe newsletter to partners and Healthy Swimming topic subscribers
Don’t Pee in the Pool!

Diarrhea and swimming don’t mix!

Pee mixed with chlorine creates chemicals that can make your eyes red and itchy.

Feature: Diarrhea and Swimming

If you wouldn’t do this...

Don't swim or let your kids swim if sick with diarrhea!

Learn more at www.cdc.gov/healthyswimming
Facts About Crypto and Swimming Pools

What is Crypto and how can it affect me?
"Crypto" (krip-TOE), short for Cryptosporidium, is a germ that causes diarrhea. This germ is found in the fecal matter of a person who has been infected by Crypto. It has a tough outer shell that allows it to survive for a long time in the environment. It can survive for days even in properly chlorinated pools.

Crypto is one of the most common causes of recreational water illness (disease caused by germs spread through pool water) in the United States and can cause prolonged diarrhea (for 1–2 weeks). It can make anyone sick, but certain groups of people are more likely to become seriously ill when infected with Crypto:

- Young children
- Pregnant women
- Individuals with weakened immune systems

How is Crypto spread in pools?
Crypto is spread by swallowing water that has been contaminated with fecal matter containing Crypto.

You share the water—and the germs in it—with every person who enters the pool. If one person infected with Crypto has diarrhea in the water, the water can be contaminated with tens or hundreds of millions of germs. Swallowing even a small amount of pool water that has been contaminated with the Crypto germ can make you sick.
Background

- Outbreaks associated with treated recreational water
  - Caused by pathogens or chemicals
  - Involve pools, hot tubs, or water playgrounds

- *Cryptosporidium* can survive in properly chlorinated water for > 1 week
  - Causes cryptosporidiosis

- *Legionella* is susceptible to chlorine but can survive when protected by biofilm
  - Causes Legionnaires’ disease or Pontiac fever
Methods

- **Outbreak Definition**
  - Similar illness in \( \geq 2 \) persons, linked by location and time of exposure to
    - Treated recreational water or
    - Pathogens or chemicals in the air from treated recreational water
  - First illness occurred during 2015–2019

- **CDC’s National Outbreak Reporting System (NORS)**
  - Voluntarily reported to CDC by February 4, 2021

- **Variables**
  - Earliest illness onset date, case count, hospitalization and death counts, etiology, setting and venue of outbreak exposure
36 states and District of Columbia

208 outbreaks

≥3,646 cases

286 hospitalizations

13 deaths
TABLE. Outbreaks associated with treated recreational water,* by etiology — National Outbreak Reporting System, United States, 2015–2019

<table>
<thead>
<tr>
<th>Etiology</th>
<th>No. of outbreaks N (%)</th>
<th>No. of cases N (%)</th>
<th>Median No. of cases (Minimum–Maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cryptosporidium</td>
<td>76 (37%)</td>
<td>2,492 (68%)</td>
<td>9.5 (2–638)</td>
</tr>
<tr>
<td>Legionella</td>
<td>65 (31%)</td>
<td>354 (10%)</td>
<td>2 (2–92)</td>
</tr>
<tr>
<td>Other – Identified*</td>
<td>14 (7%)</td>
<td>107 (3%)</td>
<td>4 (2–36)</td>
</tr>
<tr>
<td>Other - Unidentified</td>
<td>53 (25%)</td>
<td>693 (19%)</td>
<td>8 (2–94)</td>
</tr>
</tbody>
</table>

* Identified includes outbreaks with the following etiologies: *Acanthamoeba, Campylobacter*, Shiga toxin–producing *Escherichia coli, Giardia*, nontuberculous mycobacteria, norovirus, and *Shigella.*
Outbreaks associated with treated recreational water, by etiology and month — National Outbreak Reporting System, United States, 2015–2019

* “Other” includes outbreaks with the following confirmed etiologies: *Acanthamoeba*, *Campylobacter*, Shiga toxin–producing *Escherichia coli*, *Giardia*, nontuberculous mycobacteria, norovirus, and *Shigella*. 
Outbreaks associated with treated recreational water, by etiology and year — National Outbreak Reporting System, United States, 2015–2019

* "Other" includes outbreaks with the following confirmed etiologies: *Acanthamoeba*, *Campylobacter*, Shiga toxin–producing *Escherichia coli*, *Giardia*, nontuberculous mycobacteria, norovirus, and *Shigella*. 
Limitations

- COVID-19 pandemic response might have affected NORS data
  - Resource and time intensive
  - Affected 2018 and 2019 closeouts
- Barriers to detection and reporting (e.g., lengthy incubation periods)
- Available data skewed to include outbreaks of notifiable diseases
- Transient nature of chemical contamination and disconnect between outbreak responders and reporters
- Data on factors contributing to the outbreaks were limited and could not be analyzed
Discussion

To prevent outbreaks, the aquatics sector and U.S. jurisdictions can voluntarily

- Adopt recommendations in CDC’s Model Aquatic Health Code
  - www.cdc.gov/mahc
  - Hyperchlorination inactivates oocysts
  - Ultraviolet light or ozone to inactivate oocysts

- Encourage swimmers to follow CDC’s healthy swimming steps
  - www.cdc.gov/healthywater/swimming/swimmers/steps-healthy-swimming.html
  - “Don’t swim or let kids swim if sick with diarrhea”
  - Check inspection scores and conduct mini-inspections
Discussion

- To prevent outbreaks, the aquatics sector and U.S. jurisdictions can voluntarily
  - Adopt the Legionella Control Toolkit
    - www.cdc.gov/legionella/wmp/control-toolkit/index.html
    - Maintain disinfectant concentration, vigorously scrub all surfaces, and frequently replace water
  - Implement Water Management Program Toolkit
    - www.cdc.gov/legionella/wmp/toolkit/index.html
    - Reduce the risk of Legionnaires’ disease
2021 MAHC Progress

- Currently developing the 4th edition

- Received > 530 change requests

- Proposed Code revisions include:
  - New guidance for filtration removal of *Cryptosporidium* oocysts
  - Changing the minimum required testing frequency for cyanuric acid
Cyanuric Acid (CYA)

- Added to slow down the degradation of free available chlorine by ultraviolet light
  - Increases the inactivation times of *Cryptosporidium*

- Proposed 2021 MAHC revision suggests adding response curves showing the impact of CYA concentrations on hypochlorous acid concentrations

- Further research into CYA needed for future MAHC updates
Acknowledgments

- State, DC, and local waterborne disease coordinators, epidemiologists, environmental health practitioners, and microbiologists

- CDC collaborators
  - Ashley Andujar
  - Elizabeth Hannapel
  - Vincent Hill
  - Michele Hlavsa
  - Catherine Hough
  - Megan Gerdes
  - Joseph Laco
  - Sooji Lee
  - Allison Miller
  - John Person
  - Justin Rokisky
Communication Resources

- HSSW 2021 Campaign: [https://www.cdc.gov/healthywater/swimming/safe-swimming-week/](https://www.cdc.gov/healthywater/swimming/safe-swimming-week/)
- Diarrhea and Swimming: [https://www.cdc.gov/healthywater/swimming/swimmers/rwi/diarrheal-illness.html](https://www.cdc.gov/healthywater/swimming/swimmers/rwi/diarrheal-illness.html)
- HSSW Buttons/Banners: [https://www.cdc.gov/healthywater/swimming/materials/buttons-banners.html](https://www.cdc.gov/healthywater/swimming/materials/buttons-banners.html)
- Crypto Factsheet: [https://www.cdc.gov/healthywater/pdf/swimming/resources/cryptosporidium-factsheet.pdf](https://www.cdc.gov/healthywater/pdf/swimming/resources/cryptosporidium-factsheet.pdf)
- Giardia Factsheet: [https://www.cdc.gov/parasites/giardia/factsheets.html](https://www.cdc.gov/parasites/giardia/factsheets.html)
- Healthy Swimming Posters: [https://www.cdc.gov/healthywater/swimming/materials/posters.html](https://www.cdc.gov/healthywater/swimming/materials/posters.html)
Thank you!

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)

https://www.cdc.gov/healthywater/swimming/swimmers/rwi/diarrheal-illness.html


The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
State Designee Committee (SDC)

- Focus to discuss lessons learned and best practices for safe swimming at the state level
- SDC convenes regularly to discuss public health perspectives and input regarding the Model Aquatic Health Code (MAHC)

MAHC 4th Edition to be released Summer 2021

Technical Support
Questions?

Use the Q&A box to submit your questions for the panelists!

Thank you for attending today’s webinar!
You will receive a follow-up email with the webinar recording.