



Robert Blake, MPH, REHS

Update on the Model Aquatic Health Code

Editor's Note: NEHA strives to provide up-to-date and relevant information on environmental health and to build partnerships in the profession. In pursuit of these goals, we feature a column from the Environmental Health Services Branch (EHSB) of the Centers for Disease Control and Prevention (CDC) in every issue of the *Journal*.

In this column, EHSB and guest authors from across CDC will highlight a variety of concerns, opportunities, challenges, and successes that we all share in environmental public health. EHSB's objective is to strengthen the role of state, local, tribal, and national environmental health programs and professionals to anticipate, identify, and respond to adverse environmental exposures and the consequences of these exposures for human health.

The conclusions in this article are those of the author(s) and do not necessarily represent the views of CDC.

Robert Blake is a health scientist of the EHSB at CDC and has been working in the environmental health field for more than 30 years.

The Centers for Disease Control and Prevention (CDC) recognize swimming as an excellent form of physical activity, with benefits of reducing risk for chronic diseases and improving mental health. Aquatic facilities can pose a risk, however, to public health from both illness and injury.

Although local and state public health codes typically regulate pools, spas, and other aquatic venues, these codes may not always be based on up-to-date science, cover the newest construction developments in the aquatics field, or respond to new outbreak data such as those addressing spray pad-associated outbreaks or indoor air quality events. Lack of consistent health regulation in state

and local codes not only confuses pool and spa owners, operators, suppliers and users, but also leaves persons unnecessarily vulnerable to disease and injury.

In recent years reported recreational waterborne disease outbreaks linked to aquatic facilities have steadily increased (Hlavsa et al., 2014). Figure 1 illustrates this increase, which is driven largely by the challenges of maintaining an aquatic facility and preventing the transmission of a variety of ailments, particularly diarrheal diseases.

Additionally, aquatic venues are the sites for many injuries, particularly among children. Some of those injuries include the more common slips, falls, cuts, and bruises; others

are life threatening, such as drowning, suction entrapment from pool drains, diving injuries, and chemical injuries (Hlavsa & Beach, 2013).

The Model Aquatic Health Code (MAHC)

In response to the increase in outbreaks of waterborne illness, in February 2005 CDC sponsored a workshop in Atlanta, Georgia, at which a variety of stakeholders made recommendations about how to improve public health outcomes in public aquatic facilities. A key recommendation was to develop a model aquatic health code to do the following:

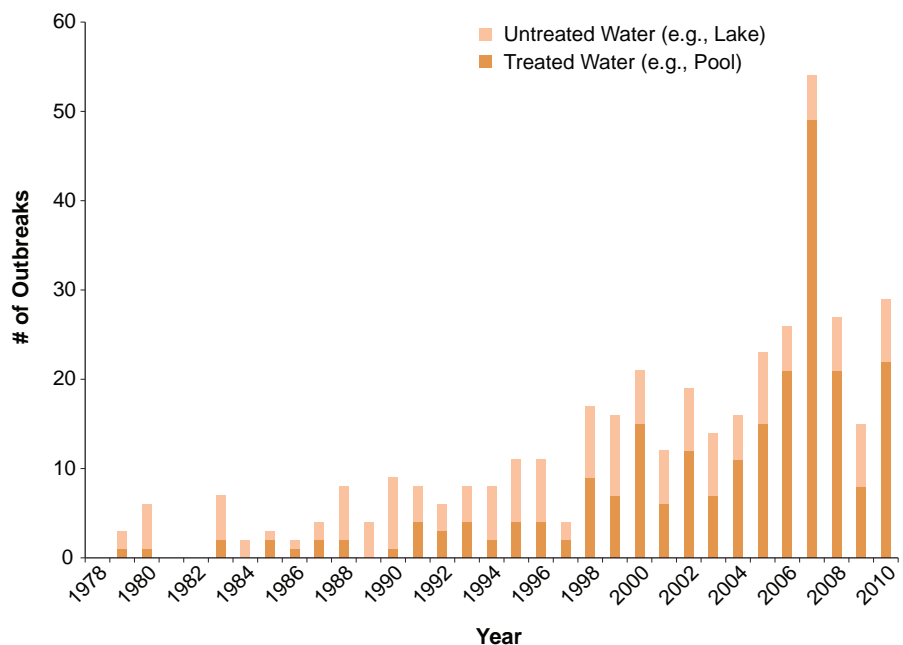
- be driven by data;
- address outbreaks, injuries, and other public health issues associated with aquatic facilities; and
- be available for free for local and state jurisdictions to use to create their own codes (Blake & Peters, 2012).

Since the workshop, CDC units with expertise in environmental health, infectious disease, injury prevention, and public health law have collaborated on the MAHC effort. CDC worked with hundreds of volunteer stakeholders from public health, academia, and the aquatics industry who have served on various technical committees to compile the MAHC's proposed code language and the supporting annex materials. A MAHC steering committee and CDC staff oversaw all committee work. This long-term project is now culminating with the MAHC launch planned for the summer of 2014.

CDC staff and committee members have spent 2013 and the first part of 2014 responding to the thousands of public comments that

FIGURE 1

Recreational Waterborne Disease Outbreaks in Treated and Untreated Water



were submitted during formal public comment periods on topical modules, as well as integrating these discrete modules into one cohesive document and making the document available for a final round of public comment. Once these final comments are addressed, the first edition of the MAHC will be launched. The MAHC Web site (www.cdc.gov/mahc) provides MAHC provisions and explanatory annex materials with the public health rationale (Centers for Disease Control and Prevention, 2014).

Operational Guidelines for the MAHC

Because the MAHC is not a federal law, it is enforceable only if state and local authorities adopt it. During the public comment period for the regulatory program module, some regulators recommended that code provisions for the regulatory community at the local and state levels should not be included in the MAHC. Successful implementation of the MAHC, however, would require improvements in all sectors of aquatic health including local and state inspec-

tion programs. To provide such guidance, CDC staff have moved these pool program operational guidelines out of the MAHC into separate stand-alone guidance to help supplement existing and in some cases new swimming pool inspection programs (sidebar). The content for the operational guidelines follows a similar structure as that used in the Food and Drug Administration (FDA) Annexes in their model *Food Code*.

The Conference for the Model Aquatic Health Code

Once the MAHC is fully launched and jurisdictions adopt the MAHC and begin to implement its provisions, questions and new research gaps will surface. Again learning from the FDA's process, CDC and the National Conference of State Legislatures led the creation of an independent tax-exempt body called the Conference for the Model Aquatic Health Code (CMAHC) for updating the MAHC. This body will facilitate expert examination of new data and emerging issues, which in turn will prompt updates to the MAHC. CDC staff will main-

Proposed Model Aquatic Health Code (MAHC) Operational Guidelines

- The public health reasons for a strong pool inspection program
- MAHC implementation processes for different jurisdictions
- Inspection program resources included fee categories
- Equipping pool inspection staff for complete pool inspections
- Recommended training and standardization of inspections in job functions
- Collaboration with building, plumbing, mechanical, and other inspectors
- Risk-based inspections
- Inspection forms
- Inspection data collection and use
- Outbreak investigations
- Injury and drowning investigations
- Emergency closures
- Enforcement processes

tain leadership through liaison and scientific review roles within the CMAHC.

The MAHC process has been very labor intensive, but the use of the final product by local and state jurisdictions should eventually lead to fewer facility closures and reductions in waterborne disease outbreaks, drowning, and chemical injuries (Figure 2). 🐼

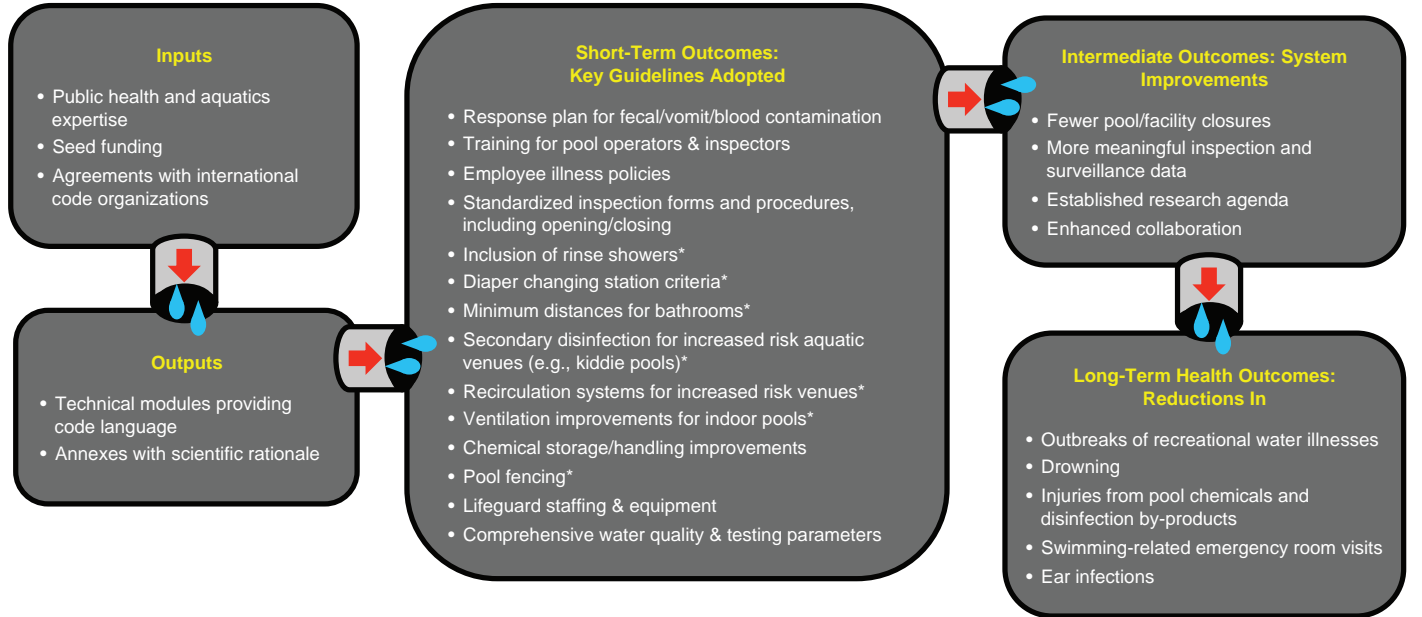
Corresponding Author: Robert Blake, Health Scientist, Division of Emergency and Environmental Health Services, National Center for Environmental Health, CDC, 4770 Buford Highway NE, MS F-58, Atlanta, GA 30341-3717. E-mail: rblake@cdc.gov.

continued on page 36

continued from page 35

FIGURE 2

Model Aquatic Health Code Logic Model



*Provisions pertaining primarily to new or modified construction.

References

Centers for Disease Control and Prevention. (2014). *Model aquatic health code: National model swimming pool and spa code*. Retrieved from <http://www.cdc.gov/healthywater/swimming/pools/mahc/>

Blake, R., & Peters, J. (2012). Model aquatic health code (MAHC) and the international swimming pool and spa code (ISPSC). *Journal of Environmental Health, 74*(9), 36–39.

Hlavsa, M.C., & Beach, M.J. (2013). Healthy and safe swimming: Pool chemical-associated health events. *Journal of Environmental Health, 75*(9), 42–44.

Hlavsa, M.C., Roberts, V.A., Kahler, A.M., Hilborn, E.D., Wade, T.J., Backer, L.C., & Yoder, J.S. (2014). Recreational water-associated disease outbreaks, United States, 2009–2010. *Morbidity and Mortality Weekly Report, 63*(1), 6–10.

NEHA CREDENTIALS



New REHS/RS Exam Offered in July

Apply by May 30 to take the REHS/RS exam at the NEHA 2014 AEC.

NEHA recently updated the exam for the Registered Environmental Health Specialist/Registered Sanitarian (REHS/RS) in order to ensure that the credential exam tests on the most up-to-date and relevant information. Candidates who are preparing for or are eligible to take the REHS/RS exam must apply by May 30, 2014, to take the exam at the NEHA 2014 AEC in Las Vegas.

Visit NEHA's Web site to find details on:

- Updated Candidate Information Brochure
- New Content Outline
- Revised Reference/Study Materials

For more information: neha.org/credential/rehs2014.html