Minimizing Risk of Illness and Injury at Public Aquatic Facilities by Maximizing the Power of Aquatic Facility Inspection Data

Michele C. Hlavsa, MPH, RN
Jasen M. Kunz, MPH
Michael J. Beach, PhD

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 these columns, EHSB and guest authors share insights and information about environmental health programs, trends, issues, and resources. The conclusions in this column are those of the author(s) and do not necessarily represent the views of CDC.

Michele Hlavsa is chief of the Healthy Swimming Program in CDC's National Center for Emerging and Zoonotic Infectious Diseases (NCEZID). CDR Jasen Kunz serves as CDC liaison to the Council for the Model Aquatic Health Code (CMAHC) on behalf of CDC's National Center for Environmental Health. Michael Beach is associate director of the Healthy Water Program at CDC's NCEZID and president of the CMAHC board of directors.

More than two thirds (68%) of local health departments regulate, license, or inspect public aquatic facilities, defined as a physical place that contains one or more aquatic venues (e.g., pools) and supports infrastructure (e.g., a chemical pump room) (National Association of County and City Health Officials, 2013). When environmental health practitioners enforce state or local codes during inspections, they prevent illness and injuries at public aquatic facilities. But how exactly can the public and public health—two key healthy and safe swimming stakeholders—maximize the power of aquatic facility inspection data to minimize the risk of illness and injury? Just follow the inspection data.

The Public
A national convenience survey found that about two thirds of adults, who regularly participate in aquatics or whose children do, don't know that they can ask for inspection scores for individual public aquatic venues (Hlavsa, McClain, Collier, & Prue, 2014). If aware of inspection scores, almost 90% are somewhat or very interested in knowing the inspection scores. Conspicuously posting inspection scores online (e.g., on public health and aquatics Web sites) and on site (e.g., at the facility's entrance or waterside) can increase public awareness. It can also encourage the public to regularly check these inspection scores and use them to decide which facilities to use, much like how the public checks food service establishment inspection scores to decide where to eat.

Public Health
Data tell us that almost one in eight (12.3%) routine inspections conducted in 2013 in 16 local jurisdictions resulted in immediate closure because at least one violation that represented a serious threat to public health had been identified (Hlavsa et al., 2016). Violations (e.g., improper disinfectant concentration or missing safety equipment) indicate an increased risk of illness and injury associated with public aquatic facilities. Additionally, violations represent an opportunity for environmental health practitioners to be illness and injury prevention advisors, educating operators about how to properly operate and maintain public aquatic facilities and why these measures are necessary. Such interactions, at the waterside or in aquatic facility operator training, could prevent future or repeated violations, and more importantly, minimize risk of illness and injury associated with public aquatic facilities.

Environmental health aquatic inspection programs have finite resources, so they can't be everywhere all of the time. To help direct enforcement (e.g., risk-based inspections) and education efforts, programs can use data from their aquatic facility inspections to:
  • determine which identified violations resulted in immediate closures;
  • examine quantitative water quality readings (e.g., chlorine and cyanuric acid concentrations, pH) collected by environmental health practitioners during inspections, which are particularly valuable when readings that are too low have different public
health implications than those when readings are too high;
• characterize distribution of violations, closures, and out-of-range readings by setting (e.g., hotel/motel, waterpark), venue (i.e., pool versus hot tub/spa), and pool category (e.g., wading pool, interactive water play venue); and
• monitor trends in violations, closures, and out-of-range readings overall and by specific settings, venues, and pool categories.

Enabling regular analysis of aquatic facility inspection data requires collecting and storing the data so that they can be easily accessed and extracted. This requirement calls for a multidisciplinary effort led by environmental health across local, state, and federal public health agencies to increase efficiency in developing needed tools, and at the level of individual environmental health aquatic inspection programs. Environmental health practitioners have technical knowledge of the operation and maintenance of public aquatic facilities and inspection expertise; epidemiologists have data analysis expertise, and information technology specialists have database construction and maintenance expertise.

One key tool needed to facilitate regular analysis of aquatic facility inspection data is a model form to collect the data. As a starting point, the Centers for Disease Control and Prevention (CDC) developed a model inspection form that state and local environmental health practitioners field tested and provided feedback on. The current form (Figure 1) includes about 50 of the top risk reduction elements in the Model Aquatic Health Code (MAHC). The MAHC is a set of CDC recommendations to prevent public aquatic facility–associated drownings, other injuries, and outbreaks (such as the 2014 Tennessee cryptosporidiosis outbreak associated with a hotel pool published in this issue; see page 16). Additionally, CDC is developing a free MAHC inspection iPad application (Figure 2). The application includes the model inspection form, a system to capture and run simple statistics on aquatic facility inspection data, and the complete 2016 MAHC (2nd Edition). A link to the app will be available on CDC’s MAHC Web site.

Reprinted with permission from NEHA

May 2017 • Journal of Environmental Health

41

Quick Links

• Centers for Disease Control and Prevention’s (CDC) Model Aquatic Health Code: www.cdc.gov/mahc

• Network for Aquatic Facility Inspection Surveillance: www.cdc.gov/mahc/nais.html

• Council for the Model Aquatic Health Code (CMAHC): www.cmahc.org

• Become a member of CMAHC: www.cmahc.org/become-a-member.php

• CDC’s Environmental Health Services Branch: www.cdc.gov/nceh/ehs
The Council for the Model Aquatic Health Code (CMAHC) (www.cmahc.org), which supports the use of aquatic facility inspection and other data to optimize the MAHC and supports MAHC adoption, could, through its membership, facilitate the cross-agency multidisciplinary collaboration needed to develop a set of tools to maximize the power of aquatic facility inspection data. Be a part of this public health effort, become a CMAHC member. Also, help drive the use of data to shape the 2018 MAHC (3rd Edition) by participating in the second biennial CMAHC conference in Denver, Colorado, on October 17–18, 2017, and by voting on proposed MAHC change requests from October 17–November 19, 2017.

Acknowledgement: The authors thank their state and local partners in Arizona, California, Florida, New York, and Texas for collaborating on the Network for Aquatic Facility Inspection Surveillance and maximizing the power of aquatic facility inspection data to minimize the risk of illness and injury.

Corresponding Author: Michele Hlavsa, Healthy Swimming Epidemiologist, Division of Foodborne, Waterborne, and Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, 1600 Clifton Road, MS C-09, Atlanta, GA 30329. E-mail: ac23@cdc.gov.

References


Did You Know?

There will be 8.5 hours of recreational water education at the NEHA 2017 AEC being held July 10–13 in Grand Rapids, MI. Visit www.neha.org/aec for more information regarding the education we have planned and to register.