Swimming and other water-related activities are excellent ways to get the physical activity and health benefits needed for a healthy life. In the U.S., we swim and bathe over 300 million times in pools, oceans, lakes, rivers, and hot tubs/spas each year, and most of the time it is healthy, safe, and enjoyable. There are, however, risks associated with swimming and other recreational water activities. In fact, the number of outbreaks associated with recreational water has increased substantially over the last few decades (Centers for Disease Control and Prevention, 2011). Drowning, near-drowning, and pool chemical injuries continue to occur. These occurrences underscore the need to build, maintain, and inspect public pools, hot tubs/spas, and water parks to help keep bathers and aquatics staff healthy and safe.

The Model Aquatic Health Code (MAHC) is a guidance document based on the latest science and best practices. It was developed to help local and state authorities and the aquatics sector make swimming and other aquatic activities healthier and safer. States and localities can save time by voluntarily using the MAHC to create or update existing pool codes to reduce the risk of outbreaks, drownings, pool chemical exposures, and other injuries. The MAHC guidelines are all-inclusive and aim to prevent illness and injury in the design, construction, operation, and management of public aquatic facilities.

The Centers for Disease Control and Prevention (CDC) regularly update the MAHC in partnership with the Council for the Model Aquatic Health Code (CMAHC, www.cmahc.org), which collects, assesses, and relays national input on MAHC versions. The updates keep the MAHC current with the latest advances in the aquatics industry while also responding to public health reports of disease and injury. The 2018 MAHC (3rd edition) is currently in use and the next edition will be released in summer 2021. To prepare for the new edition, CMAHC received input for MAHC change requests in late 2019 and early 2020. Proposed changes will be presented and discussed at the 2020 CMAHC conference in Houston, Texas, in October. At that time, CMAHC members will vote to accept or reject change requests to be incorporated into the 2021 MAHC (4th edition).

Even though the MAHC provides excellent prevention strategies, it is long and can be difficult to digest, which can pose challenges for users and potential adopters. Useful material that addresses a certain topic can be found in multiple sections of both the Code Language and the Annex (supporting rationale) documents.

To better serve state and local pool officials, CDC worked with many partners to develop resources to make the MAHC easier to use and navigate. The tools listed include an inspection form, electronic applications, reporting forms, and MAHC-specific checklists. They are posted on CDC’s MAHC website at www.cdc.gov/mahc/networks-tools-forms.html#adoption.

**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 this column on environmental health services from the Centers for Disease Control and Prevention (CDC) in every issue of the *Journal*.

In these columns, authors from CDC’s Water, Food, and Environmental Health Services Branch, as well as guest authors, will share insights and information about environmental health programs, trends, issues, and resources. The conclusions in these columns are those of the author(s) and do not necessarily represent the official position of CDC.

All authors are from the Water, Food, and Environmental Health Services Branch in the National Center for Environmental Health. CDR Joe Laco is an environmental health scientist with the U.S. Public Health Service. Shannon McClanahan is a former Oak Ridge Institute for Science and Education (ORISE) fellow. Brian Hubbard is the Safe Water Section team lead.
operation and management to minimize illness and injury risk and protect public health.

**Cheat Sheet**
Instructional guide for each inspection item found on the MAHC Aquatic Facility Inspection Report.

**Cross-Reference Guide**
The Cross-Reference Guide links the MAHC Aquatic Facility Inspection Report to content in the Code Language and Annex documents. The guide allows an inspector to quickly locate Code Language requirements and supporting information in the Annex needed to develop a comprehensive and detailed inspection report.

**Online Pool Inspector Training**
This online training (Figure 1), developed in partnership with the National Environmental Health Association (NEHA), provides the basics of performing an aquatic facility inspection. Based on the 2016 MAHC (2nd edition), the training addresses aquatic facility systems and walks the user through a pool inspection using the MAHC-based inspection form.

**Aquatic Inspector App**
The Aquatic Inspector app (Figure 2) provides a digital version of the MAHC inspection form, along with embedded MAHC text. The app allows environmental health practitioners to integrate the latest science and best practices into routine, follow-up, and investigative inspections of public treated aquatic venues.

**MAHC Network**
The MAHC Network, established through a CDC partnership with National Association of County and City Health Officials, is a community of MAHC users, subject matter experts, and others hoping to learn about the code. Members receive updates on the code, have access to and provide input into newly developed resources, and join bimonthly webinars featuring the code and user experiences.

**Mini-MAHCs**
CDC developed Mini-MAHCs (Figure 3) to make the MAHC more concise and easier to use and to tackle specific public health concerns. The Mini-MAHCs focus on content in the Code Language and Annex documents and allow a user to quickly locate information to address important topics. All Mini-MAHCs reference content from the 2018 MAHC.
Mini-MAHCs are currently available at www.cdc.gov/mahc/mini-mahcs.html:
• Reducing the Spread of Cryptosporidium
• Improving Swimmer Hygiene and Diaper Changing
• Preventing Pool Chemical Injuries
• Preventing In-Line Production of Toxic Chlorine Gas Events

CDC continues to support and work with NEHA and other partners to develop recreational water and MAHC-related tools. Currently NEHA is working with health departments across the U.S. to understand how they manage and publicly share aquatic facility inspection data. NEHA conducted a scan and identified only six states that published aquatic facility inspection data online and in a usable format. An additional tool emerging from NEHA’s work will be an open data standard for sharing aquatic facility inspection data.

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References


In late March 2020, NEHA distributed a rapid needs assessment to assess environmental health activities and needs in response to the COVID-19 pandemic. The findings have been summarized into a report and can be found at www.neha.org/NEHA-Issues-Key-Findings-COVID-19.