Ask and Learn About the Model Aquatic Health Code (MAHC)

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Executive Director, CMAHC
November 14, 2016
MAHC/CMAHC and Other Acronyms

Who knows about the Model Aquatic Health Code (MAHC)?

Who knows about the Council for the MAHC (CMAHC)?

Who is a member of the CMAHC?
AGENDA

Intro to MAHC and CMAHC
MAHC update process
Status of MAHC adoptions
MAHC and current aquatics issues
Response to questions
Why Create the MAHC?

- No federal regulatory agency responsible for aquatic facilities
- 68% of state and local health departments regulate, inspect, or license public swimming pools\(^1\)
- Significant variability in standards and requirements exist that are often outdated
- Significant time and resources spent by individual jurisdictions to create and update codes
MAHC is Intended to Make Pools Safer: Risk Management Approach

Understanding & identifying risk
- Drowning
- Disease
- Injury

Developing methods to manage the risk
- Physical methods (DESIGN)
- Operational methods (TRAINING)
- Management methods (PLANNING & AUDITING)

Assessing compliance
What’s Inside?

1) Preface
2) User Guide
3) Glossary, Acronyms, Initialisms
4) Design and Construction
5) Operation and Maintenance
6) Policies and Management
7) MAHC Resources
8) Appendices
Code Development Process with the MAHC

- MAHC was developed by expert consortia of national and international stakeholders
- Substantial industry participation in the process
  - Results in better acceptance by industry
  - 72% of >4400 public comments accepted
- Annex is a valuable tool that provides the data and other supporting evidence for the code requirements
- Updated every two years through the Council for the Model Aquatic Health Code (CMAHC)
MAHC and Aquatics Industry Partnership: Building Trust

- The MAHC is a product of strong collaboration amongst all stakeholders right from the beginning
- The MAHC is our best chance to avoid issue-specific legislation
- The MAHC is a proactive knowledge based document intended to address identified risks
  - VGB was a law to address one critical issue because there was no national forum to address aquatics health and safety issues
- The MAHC and CDC have gained trust of the industry as they have clearly listened by accepting over +70% of the public comments submitted to improve the document
<table>
<thead>
<tr>
<th><strong>Document type?</strong></th>
<th>Model code, not a law</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Creation Process?</strong></td>
<td>CDC led, with substantial input from state and local public health, aquatics sector, and academia Evolution NOT revolution</td>
</tr>
<tr>
<td><strong>Public comment?</strong></td>
<td>Yes, two public comment periods plus 3rd comment period when users choose to adopt</td>
</tr>
<tr>
<td><strong>Can be updated?</strong></td>
<td>Yes, improvements based on data and expertise from public health and aquatics</td>
</tr>
<tr>
<td><strong>Enforceable?</strong></td>
<td>Must be adopted by state or local authority first</td>
</tr>
<tr>
<td><strong>All pools?</strong></td>
<td>No, only public facilities in adopting jurisdictions. Also, design and construction provisions mostly apply to new and remodeled construction</td>
</tr>
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MAHC and Aquatics Industry Partnership

Keeping Pools Safe

and

Keeping Pools Open

are shared motivators for the MAHC and aquatics industry.
The Conference for the Model Aquatic Health Code (CMAHC)

• What is CMAHC?
  • 501c(3) non-profit organization

• Why does it exist?
  • Established in 2013 to manage updates to the MAHC

• Administration & Operation
  • Bylaws, Board of Directors, Executive Director
  • Committees include Technical Review Committee and Ad Hoc Committees
The Conference for the Model Aquatic Health Code (CMAHC)

- **Role**
  - Conduit for funneling advice and data-driven, science-based information from public health and aquatic industry experts to CDC
  - Support use of MAHC

- **Vision**
  - To keep the MAHC up-to-date, science-based, sustainable, easily understood and implemented by pool programs across the U.S. so as to support healthy and safe aquatic experiences for everyone.
The Conference for the Model Aquatic Health Code (CMAHC)

• Mission

• Collect, assess, and relay input on MAHC revisions back to CDC for final acceptance

• Provide advocacy and needed support to health departments and other partners on using the MAHC

• Solicit, coordinate, and prioritize research needs
CMAHC Biennial Conference

- CMAHC Biennial Conference will be hosted every two years
- Revised MAHC will be launched to coincide with Recreational Water Injury and Illnesses Week (Memorial Day) the following year
Keeping the MAHC Up to Date: 1\textsuperscript{st} CMAHC Biennial Conference
October 6-7, 2015
CMAHC Working Structure: General Outline

Input → Change Request → Technical Review & Discussion → Conference & Voting

CDC Conference & Voting Board of Directors

Standing Committees
CMAHC Process

Soliciting ideas

- CR submissions open to general public January 5 to February 19
- For 2017, open for CR submissions until February 3
CMAHC Process

- 159 CR submissions
- TRC constituted
- CR triaging to check submission criteria
- All CRs and supporting materials posted for member viewing March 31
- CRs open for member comment for 60 days
CMAHC Process

- Technical review and comment from membership
- CRs open for member comment for 60 days (July 6)
- TRC reviews posted 9/17 - open access
- CRs open for member comment until 10/23
CMAHC Process

- Gathering members to give them a voice
  - In-person and webcast
- Present and discuss 62 CRs at conference
- CRs open for member comment until 10/23
CMAHC Process

- Post-Conference comments close 10/23
- Review, potential CR revisions posted 11/6
- Member comment for 2 weeks (no revisions)
- Voting open 11/21-12/20
- Board review
- Submission to CDC, release of voting results 1/22/2016
- CDC releases MAHC 2\textsuperscript{nd} Ed. swim season 2016
Weighting of CMAHC Member Votes

Public Health/ Regulatory Sector:
Federal, State, and Local Public/Environmental Health Staff
Pool Regulatory Programs

Aquatics Sector:
Manufacturers/Suppliers – 10%
Designers/Builders – 20%
Consumer/Aquatic Management/Staff – 20%
Weighting of CMAHC Member Votes

CMAHC member voting on Change requests is organized by sector according to the Figure. Member voting is weighted according to sector to ensure that the public health benefits of a change are paramount when deciding on a change to the MAHC. The weighting will ensure that sectors with many members will not overwhelm the vote of other sectors. All “YES” and “NO” votes are used in the final count and weighting rather than having a “winner takes all” approach to the member vote allocation from each sector.

For example:
CMAHC membership: 8300 members distributed by sector

CMAHC voting scenario: Public health members think the data in support of the Change Request is insufficient and there might be some unintended consequences of passage that could negatively impact public health. To avoid unintended consequences and allow sufficient data to be collected to ensure the MAHC protects public health, this Change Request should receive a “NO” vote.
http://cmahc.org/documents/Vote_Weighting_example.pdf
CMAHC outcome: The Change Request does not pass and the MAHC is not changed in a way that potentially negatively impacts public health. If sector weighting was not utilized in the voting process, the popular vote would have passed the Change Request since there were 5905/8300 = 71.1% “YES” votes and only 2395/8300 = 28.9% “No” votes. http://cmahc.org/documents/Vote_Weighting_example.pdf

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of Members</th>
<th>“NO” votes</th>
<th>Weighting (multiply by)</th>
<th>Weighted “NO” votes (”NO” vote percentage x weighting factor)</th>
<th>Weighted “YES” votes (weighting – “NO” vote)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health/Regulators</td>
<td>300</td>
<td>295/300</td>
<td>50</td>
<td>295/300 x 50 = 49.2</td>
<td>50 - 49.2 = 0.8</td>
</tr>
<tr>
<td>Manufacturers/Suppliers</td>
<td>5000</td>
<td>100/5000</td>
<td>10</td>
<td>100/500 X 10 = 0.2</td>
<td>10 - 0.2 = 9.8</td>
</tr>
<tr>
<td>Designers/ Builders</td>
<td>1000</td>
<td>100/1000</td>
<td>20</td>
<td>100/1000 x 20 = 2.0</td>
<td>20 - 2 = 18.0</td>
</tr>
<tr>
<td>Management/Staff</td>
<td>2000</td>
<td>1900/2000</td>
<td>20</td>
<td>1900/2000 x 20 = 19.0</td>
<td>20 - 19 = 1.0</td>
</tr>
<tr>
<td>TOTAL VOTES:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70.4% NO</td>
</tr>
</tbody>
</table>

Table: Example CMAHC Vote Allocation and Weighting
Voting Details for 2015

• Voting-CR’s passed by sector submission
  • Public Health submission 34/66 passed (51.5%)
  • Industry submission 44/79 passed (55.7%)
  • CMAHC submission 14/14 passed (100%)

• Industry submitted CR’s with “no” vote
  • Chlorine feeder sizing
  • Acoustical/sound design
  • Removing “unstabilized” from feeder requirement
  • Delete water replenishment section
  • Allow total shutdown of recirculation system at night
  • Increase time between bonding inspections
  • Aspirational water quality goals
Industry submitted CR’s with “no” vote (continued)

- **Industry submitted CR’s with “no” vote**
  - Remove requirement for Lifeguard Supervisors to have lifeguard experience
  - Changes requirement for lifeguard in-service training
  - Raise combined chlorine action level (didn’t realize it was an action level not a fixed limit)
  - Emergency phone wording changed
  - Deletes maximum capacity
  - Reduces what is required on signs
  - Removes peak occupancy
  - Remove temperature variable on fecal incident response
  - Vacuum cleaner section added
Voting

• Groups rarely vote as a block; Public health likely to always be minority but MAHC still a public health code

• Of 159 Change Requests, the weighting impacted 8% (13/159);
  • 12 Yes by straight vote changed to No, 1 tie on popular vote changed to No
  • All 13 had a TRC recommendation of No
  • Biggest indicator of passage was TRC recommendation. Of TRC recommendations, members only disagreed with 2% (3/150)

• Industry members could change or delete weighting within industry category

• CDC doesn’t want to overrule CMAHC vote; best if CMAHC vote considers public health and is the same as CDC
CDC Response to Vote Results

- CDC accepted 84 (91%) of the 92 CR’s passed by CMAHC membership

- Summary of CR’s not accepted by CDC
  - CR 1 - Added a glossary term
  - CR 19 - error in voting module so members did not vote on agreed upon TRC revision. Advises to vote again w/correct info at 2017 conference
  - CR 47 - listed as a clarification however was a significant change that would result in unintended consequences and inconsistencies in the MAHC
CDC Response to Vote Results

• Summary of CR’s not accepted by CDC (continued)
  • CR 54-revision is in conflict with OSHA guidance material
  • CR’s 64, 71, 72, 109-consolidated 2 or more code items in conflict w/CDC adopted style for the MAHC
  • CR 81-changed allowable cyanurate level based on research not applicable for extrapolation to general operation and inactivation
Conference Changes

• Voting opens at Conference
  • For CRs
  • For Board of Directors members
  • Not to close until 1 month after conference to allow further member comment and discussion

• Improved standardized format for CR and presentations
  • Stress pros and cons of CR and data
  • Discuss all CRs

• Caucuses to continue
  • Improved guidance for facilitators

• Encourage groups to give voting recommendations with rationale
  • WWA gave voting rec’s last conference, could use rationale as well
Improving CR Submission Quality

• CMAHC sponsoring listening posts

• Encourage group discussion on CRs to get ideas and improvements made before submission

• Look at 2015 CRs that didn’t pass but still have merit

• Can they be improved and marketed better to improve chance of passage?
Improving CR Review and Member Comment Changes

- TRC to serve like MAHC development steering committee
- TRC to be backed up by 7 Technical Committees modeled after MAHC development process
  - Design/construction, Bather supervision, etc.
  - Can reach out to tech committees for assistance with technical reviews
- TRC reviews to be open for members to hear discussion
  - not open for two way conversation vs. member comment submission
Adoption of the MAHC
State/Local Jurisdictional Control & Decision Making

MAHC can be adopted in whole or in part

MAHC can be modified to address local issues

Annex provides support for code requirements when jurisdictions are working with local stakeholders
MAHC Adoption Status

- **Key considerations**
  - States must review and fit into regulatory process and timeframe: adoption can take > 2 years; Food Code sped up after 3-6 years

- **Endorsements**
  - NACCHO 2015; NEHA imminent; CSTE 2017?; ASTHO considering

- **Adoption**
  - Full adoption: NM (08/01/2016 after 2 years); Nova Scotia, Canada
  - Partial adoption: DE, PWTAG/UK
  - In review for potential adoption: almost 30 jurisdictions such as CO; IA; IN; NY; OH; Ontario & Alberta, Canada; Colombia
  - Becoming standard with industry: YMCA, Great Wolf Lodge, etc using MAHC regardless of state adoption
  - States referring to MAHC operation sections and using MAHC to grant variances while waiting to adopt (e.g., FL, NY, CT, MS)

- **Discussions with ICC on ISPSC**
Current Issues & the MAHC: RWI’s

Outbreaks of Acute Gastrointestinal Illness Associated with Treated Recreational Water Use, United States, 2001–2010

**Cryptosporidium spp.** 76.2%

- **Giardia** 3.5%
- **Shigella** spp. 4.1%
- **Norovirus** 4.7%
- **Unidentified** 7.0%
- **E. coli** 2.3%
- **Other* 2.3%**

*Other includes *Campylobacter*, *Salmonella*, *Plesiomonas*, and multiple pathogens

**Chlorine sensitive:** Poor pool operation & maintenance

Inadequate Pool Operation and Maintenance is Common

Samples of pool/spa inspection data

12.1% (1 of 8) of routine pool and
11.0% (1 of 9) spa inspections

... resulted in immediate closure for public health reasons.

MAHC RWI Prevention Requirements

• Operator Training

• Imminent Health Hazard
  • Requires immediate correction or pool closure when min. disinfection and water treatment not provided (section 6.6.3.1)

• Pool Operation & Maintenance
  • Disinfectant levels/monitoring/equipment (controllers)
  • Hygiene & diaper changing facilities
  • Fecal incident response (section 6.5.3)
Current Issues & the MAHC: Crypto and Secondary Disinfection
Secondary Disinfection

4.7.3.3.1.2 Required Facilities
The new construction or substantial alteration of the following increased risk aquatic venues shall be required to use a secondary disinfection system after adoption of this code:

1. Aquatic venues designed primarily for children under 5 years old, such as
   a) Wading pools,
   b) Interactive water play venues with no standing water, and
2. Therapy pools.
Secondary Disinfection
Combined Aquatic Venue Treatment

4.7.1.2.2 Secondary Disinfection
If secondary disinfection is required for an increased risk aquatic venue as per MAHC 4.7.3.3.1.2, then secondary disinfection shall be required for all treatment systems that are combined with the increased risk aquatic venue.
Current Issues & the MAHC: Ride Operation
MAHC Waterslide Operation Requirements

• Design in compliance with:
  • ASTM F2376-13 Standard Practice for Classification, Design, Manufacture, Construction and Operation of Water Slide Systems: and
  • ASTM F2469-09 Standard Practice for Manufacturer, Construction, Operation, and Maintenance of Aquatic Play Equipment

• Signage:
  • Indicating riding instructions, warnings, and requirements in compliance with manufacturer’s recommendations
Current Issues & the MAHC: Signage
MAHC Signage Requirements

Many requirements for signage:

• Safety/warning
• Diving, water depth
• Staff notification
• Emergency phone/first aid locations
• Bather supervision related
• Hygiene facility and diaper changing stations
Submitted Questions & Responses:
Question: What is the best way for me as an operator to make a difference in making changes to the MAHC?

Response:
- Become a member of CMAHC
- Volunteer/participate in CMAHC committees
- Collaborate with colleagues and submit CR’s
- Vote on the Code
Question: How can we change the way the balance of the voting is distributed?

Response: Become a member of CMAHC, then

- Collaborate with your colleagues and provide your thoughts/recommendations to CMAHC Exec. Director & Board
  - Mission accomplished! CMAHC Board agreed to:
    - Eliminate sub-sector percentage weighting so its just 50% industry/50% health
Q & A

**Question:** Will there be an education/certification process for inspectors when an AHJ adopts the MAHC?

**Response:** The National Environmental Health Association (NEHA) is developing an inspector training program.
Q & A

**Question: 5.7.1.1.1 Continuous Operation**

*All components of the filtration and RECIRCULATION SYSTEMS shall be kept in continuous operation 24 hours per day.* Filtration Systems need to be periodically shut down for cleaning of strainer baskets, but the way the code is written, this makes the pool non-compliant.

Is the expectation to clear the pool when baskets are cleaned? Or is this intended to force parks to put in strainers in parallel so one can be cleaned with the system still in service?
Q & A

**Question:** 5.7.1.1.1 Continuous Operation

**Response:** Maintenance that interrupts the pool recirculation/disinfection/treatment system(s) should not be conducted when bathers are in the pool.

Common scenario for pool chemical exposure incidents when recirculation system is shut-down, then re-started with bathers in the pool.
Q & A

**Questions:** Sponsors and membership
- Please describe the need for sponsors
- How many members does CMAHC have now?
- What is the goal for members and sponsors?

**Responses:**
- The CMAHC is a self-supporting, 501(c)(3) non-profit organization. It relies on members and sponsors for funding
- Funding is critical to the sustainability of the CMAHC and its success in serving as membership’s voice on how to update and improve the MAHC. Sponsorships and membership dues support the CMAHC Executive Director to interact with CDC, recruit and coordinate Technical Review Committee and other volunteer efforts, raise awareness about the MAHC and CMAHC, and build new partnerships
Questions: Sponsors and membership

Responses (continued):

There currently are 589 CMAHC members

The goal for membership is to have broad and extensive membership by everyone involved with aquatics. It is member expertise that drives the CMAHC!

Sponsorship, through giving of industry leaders who are committed to the importance of working collaboratively with federal, state, and local health officials, the aquatics industry and its many segments, academia, and consumer groups, allows the CMAHC to sustain the MAHC
Q & A

**Question:** Has CMAHC considered providing a list of lifeguard training programs that meet MAHC requirements?

**Response:** Yes, the CMAHC intends to provide this service as well as the review and listing of other MAHC required training programs (qualified operator training; lifeguard supervisor).
Q & A

**Question**: Why was incident reporting not revised to specify only incidents occurring at aquatic venues?

**Response**: The MAHC was revised to narrow reporting to incidents occurring at aquatic facilities. The intent was to include incidents associated with aquatic venues but also report those occurring on the deck or otherwise associated with operation of the aquatic venue. If only venue was specified, it would restrict reporting to incidents occurring in/within the pool structure/vessel.
Q & A

**Question:** What revisions has the CMAHC considered regarding emergency phones for patron use vs. central dispatch within a facility?

**Response:** The MAHC allows for *alternate communication systems*. For larger facilities, this could include internal communication processes such as two-way radio use to a central phone to facilitate emergency communications to outside EMS in place of hard wired publicly accessible phones.
MEMBERSHIP:
How To Become a Member

Driven by your expertise.

EVERY EXPERIENCE MATTERS

IAAPA
Attractions
Expo
Just about everyone or their family uses public swimming facilities. The Council for the Model Aquatic Health Code promotes health and safety at the nation’s public swimming pools and hot tubs through use of the science-based guidance found in CDC’s Model Aquatic Health Code (MAHC), the only all-inclusive national model pool code. The CMAHC, a member-driven organization, is unique in that no other organization exists exclusively to advocate, evolve, innovate, promote implementation, and organize research in support of, the Model Aquatic Health Code (MAHC). Join now and add your voice to the national health and safety discussion.
Join, Sponsor, and Get Involved

The CMAHC is a self-supporting, 501(c)(3) non-profit organization. It relies on members and sponsors who recognize the benefits of open access, guidance based on science and best practices, the Model Aquatic Health Code (MAHC), for improving the health and safety of aquatics. We seek support from organizations and individuals whose mission and goals will be advanced by the CMAHC mission to promote aquatic health, safety, and recreation. Funding is critical to the sustainability of the CMAHC and its success in serving as membership’s voice on how to update and improve the MAHC. Sponsorships and membership dues support the CMAHC Executive Director to interact with CDC, recruit and coordinate Technical Review Committee and other volunteer efforts, raise awareness about the MAHC and CMAHC, and build new partnerships to:

1. Provide technical assistance on the MAHC
2. Plan, organize, and conduct the CMAHC Vote on the Code biennial conference
3. Serve as the national clearinghouse for input on updates/improvements to the MAHC
4. Collect, assess, and relay input on the MAHC revisions to CDC for final acceptance
5. Provide technical support to health departments, aquatics groups, and other partners on MAHC adoption and use
6. Solicit, coordinate, and prioritize research needs

Consider supporting and getting involved with the CMAHC in multiple ways.

Get involved today!

- Become a Member
  - Become a Sponsor
  - Current Sponsors

Contact Us:
The Council for the Model Aquatic Health Code PO Box 3121, Decatur, GA 30031 Phone: (678) 221-7216 Contact Form
The Council for the Model Aquatic Health Code (CMAHC)

Join, Sponsor, and Get Involved > Become a Member > Membership Signup Form

Membership - Sign Up!

Become a CMAHC Member Today and Join the Voice of Aquatics!

Fill out the form below to become a member of the Council for the Model Aquatic Health Code. Your credit card will be billed in the amount of $40.00 for your biennial membership, which is valid through the CMAHC Vote on the Code 2017 Conference.

Check if Renewal: [ ]
* Country: United States
* First Name:
* Last Name:
* Title:
* Organization:
* Street Address: Street Address or P.O. Box
  * Apt/Suite: Apartment or Suite
  * City: City
  * State: Select State
  * Zip: Zip Code
* Telephone: [ ]
  * Sector: Select Sector
* Email Address: Your Email Here
* Confirm Email: Confirm Email
* Password: Your CMAHC Password Here
  * Confirm Password: Confirm CMAHC Password

Enter Payment Information

* Name on card: [ ]
  * Payment Method: Select Credit Card

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Enter your email address below to receive CMAHC email updates:

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Submit Signup

Contact Us:
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Contact Information

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