

# Progress of the U.S. Model Aquatic Health Code Project

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Model Aquatic Health Code



## Current Public Pool Code Situation in the U.S.

- ❑ Jurisdiction – State and local, usually under environmental health authority
- ❑ Significant variability
- ❑ Lack of uniformity
- ❑ Responsiveness – difficult to update



## Background

- ❑ CDC-sponsored workshop “Recreational Water Illness Prevention at Disinfected Swimming Venues” was held from February 15-17, 2005, in Atlanta, Georgia.
- ❑ One recommendation from the workgroup “Maximizing the Impact of Environmental Health Prevention Programs” at this workshop was the development of a national model pool code.



## MAHC Vision and Objective

- ❑ A MAHC that is user-friendly, knowledge-based, and scientifically supported in an effort to reduce risk and promote healthy recreational water experiences.
- ❑ The MAHC will transform varied swimming pool regulations used by health departments into a uniform set of state and local codes that ensure the health and safety of the swimming public.



## MAHC Scope




- **All areas of public health concern**
  - Public venues
  - Water, air, facility exposures that impact bathers
  - Leave other areas to building codes, etc.
  
- **Venue types**
  - Man-made water venues
  - Health care-based pools
  - Therapy pools






## MAHC Plan

- **Data or best practices driven**
  - Avoid prescription when possible
- **Modular**
  - Easier to complete if modules are updated rather than entire code
- **Current and updated**
  - Will be modeled after the Conference for Food Protection where a clear process is put in place to revise on a biennial basis based on new data
- **Free and accessible for all**
  - Web accessible



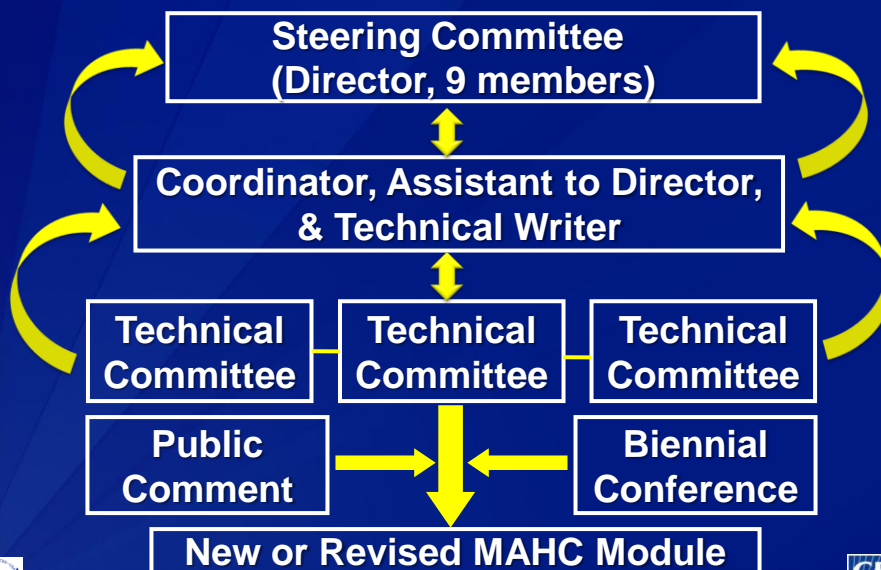



## MAHC Outcomes

- ❑ Reductions in RWIs
- ❑ Adoption of minimum standards throughout the U.S.  
(as with national food safety and building model codes)
- ❑ Need for mandatory training and education
- ❑ Improved surveillance systems
- ❑ Improved data collection
- ❑ Data-based decision making
- ❑ Systems-based approaches to facility design, maintenance, and operation
- ❑ Research agenda



## MAHC Process



## Steering Committee

- ❑ Guides MAHC process
- ❑ Sets priorities
- ❑ Creates Technical Committees (TC's) and selects chairpersons
- ❑ Advises on process/objectives
- ❑ Exercises editorial control of TC products
- ❑ Ensures uniformity and fit with mission/objectives



## Technical Committees

- ❑ Formulate and creates new code modules
- ❑ Examine existing technologies and methodologies
- ❑ Determine scientific basis for recommendations and criteria
- ❑ Identify scientific information gaps
- ❑ Outline data needed for future revisions



## Technical Committee Composition

- ❑ Minimum of 6, maximum of 15 members.
- ❑ Comprised of members representing various disciplines, namely regulators, designers, operators, suppliers, contractors, consumers, and academia.
- ❑ Not required to have an exact ratio between individuals representing public health and individuals representing industry.
- ❑ Chairperson will strive for broad geographic distribution across the United States when selecting members.



## Technical Committees

- ❑ Contamination Burden
- ❑ Disinfection & Water Quality
- ❑ Facility Design & Construction
- ❑ Facility Maintenance & Operation
- ❑ Hygiene Facilities
- ❑ Lifeguarding/Bather Supervision
- ❑ Monitoring & Testing
- ❑ Operator Training
- ❑ Recirculation Systems & Filtration
- ❑ Regulatory Program Administration
- ❑ Risk Management/Safety
- ❑ Ventilation & Air Quality



## Lifeguarding/Bather Supervision Scope of Work

- The work of the Lifeguarding / Bather Supervision Technical Committee will include lifeguard qualifications and training, staffing of lifeguards and attendants, provision of lifeguard equipment and placement requirements, safety training (CPR, AED, etc.), first aid equipment and facilities, and guidance for unguarded facilities.



## Impact

- **MAHC is not being written behind closed doors.**
  - Both the Steering Committee and the 12 technical committees have a robust mix of health officials, industry professionals, and academic researchers.
  - The public comment process ensures that everyone has an opportunity to provide input on the MAHC.



## Process: Public Comment

### Phase I: MAHC Modules

1. **Module posted for 60-day public comment on CDC Healthy Water website.**
  - Each module will be posted when complete instead of waiting for all modules to be done.
  - Modules posted at:  
<http://www.cdc.gov/healthywater/swimming/pools/mahc/structure-content/#comment>
2. **All comments will be reviewed and addressed by Steering Committee, with input from Technical Committee that developed module.**



## Process: Public Comment

### Phase II: Entire MAHC (all modules)

1. **After all modules have been posted for comment:**
  - a. Public Comment Response document for each module will be posted on CDC Healthy Water website.
    - Lists each comment (or group of similar comments), followed by explanation of how comment was addressed.
  - b. First draft of the MAHC will be posted for 60-day public comment.
    - Allows for review of modules in context of entire document.
2. **Comments on first draft of MAHC will be reviewed and addressed by Steering Committee, with input from Technical Committees.**
3. **Final MAHC posted, along with Public Comment Response document for comments on entire MAHC.**



## Impact

- ❑ MAHC Adoption – Guidance in the Annex will be developed to assist with adoption and implementation of the MAHC.
- ❑ Evolution vs. Revolution



## Impact

- ❑ The MAHC is a model. State and local health departments can choose to adopt the MAHC as their aquatic health code - in its entirety, parts of, or not at all.
  - After adoption, the state/local health department would enforce the MAHC within their jurisdiction just as they do now with their existing aquatic health code.
- ❑ The MAHC is not a federal regulation or law.
  - CDC is hosting the MAHC – however, CDC is not a regulatory agency and there is no enforcement of the MAHC at the federal level. Again, the MAHC is a model code!



## Planning for the Future

- ❑ Updating the MAHC – A structure and process for future MAHC updates is being developed.
- ❑ Strategic planning for future transition and replacement of Steering Committee and Technical Committee structure.



## Conclusion

- ❑ The MAHC will serve as a model for those needing guidance to implement a public pool code.
- ❑ The process will create a repository for best practices for operation, including the potential for collaboration on an international level.



## More Information: Healthy Water Website

<http://www.cdc.gov/healthywater/swimming/pools/mahc>

**Healthy Swimming/Recreational Water**

Swimming and other water-related activities are excellent ways to get the physical activity needed for a healthy life, and millions of people enjoy oceans, lakes, rivers, pools, and spas each year. However, it is important to be aware of ways to prevent water-related adverse health events, such as sunburn and other injuries, **drowning, and recreational water illnesses (RWIs)**. CDC's Healthy Swimming program provides information for the public and health professionals (for example, outbreak response toolkits and the Model Aquatic Health Code) on a variety of subjects.

**MAHC Information**  
Developing a Model Aquatic Health Code **GO»**

MAHC Information »  
New Pool Report  
Healthy Swimming

Text size: S M L XL  
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**Healthy Swimming & Recreational Water Topics**

<b>Pools &amp; Hot Tubs</b> Model Aquatic Health Code, Design, Operation, Disinfection...	<b>Oceans, Lakes, &amp; Rivers</b> Beach Monitoring, Water Quality Indicators...
<b>Recreational Water Illness</b> RWI Basics, Education & Prevention Materials, State Resources...	<b>Injury &amp; Skin Cancer</b> Drowning, Boating, Sun Protection...
<b>Outbreak Response Toolkits</b> RWI, Legionellosis, Cryptosporidiosis, etc....	<b>CDC Programs &amp; Projects</b> Recreational Water-related Programs and Projects at CDC...

**For Specific Groups**

- MAHC Module Reviewers (NEW)
- General Public
- Aquatics Staff
- Health Professionals
- Travelers
- En Español

**Health Benefits of Water-Based Exercise**

**Popular Links**

- What are Recreational Water Illnesses?
- Hot Tub Rash
- Giardia
- Pool & Hot Tub Disinfection and Remediation
- Posters on Pool Safety and RWIs
- Swimmer's Ear
- Frequently Asked Questions

**Resources**

- ❑ **For more information, visit:**  
<http://www.cdc.gov/healthywater/swimming/pools/mahc/>
- ❑ **Email:** [MAHC@cdc.gov](mailto:MAHC@cdc.gov)
- ❑ "The findings and conclusions in this presentation have not been formally disseminated by CDC and should not be construed to represent any agency determination or policy."



## Contamination Burden Scope of Work



- The Contamination Burden Technical Committee scope of work will be quite different from the other committees, since no specific section of the code will be drafted by this technical committee. The Contamination Burden Technical Committee will provide data to assist other technical committees in specifying performance requirements related to contamination burden (i.e. bather load). The committee will summarize existing information on the two primary composite contaminant types: particulates and chlorine demand. The other committees can then provide the models to calculate the capacity of the filtration, circulation, and chemical feed systems needed to protect public health. It is expected that limited data will prevent the other committees from making concrete, data-based decisions on removal rate requirements, but those areas may become topics for future research. The Contamination Burden Technical Committee will summarize existing data and point out areas where data are lacking.



## Disinfection & Water Quality Scope of Work



- The Disinfection & Water Quality Technical Committee will examine disinfection methodologies including: types, disinfectant concentrations, stabilizers, supplemental disinfection processes or devices, feed equipment, controllers, pH, and water quality testing methods. The committee will also provide water quality recommendations, including: sampling and analysis, chemical and microbial quality, water clarity, water temperature, and saturation index.



## Facility Design & Construction Scope of Work

- The Facility Design & Construction Technical Committee examines the physical design and construction requirements of the pool and associated structural facilities, such as filter rooms and chemical storage areas. Committee responsibilities include: the design/construction aspects of the pool shell (shape, design, slope), decks, lighting, electrical, fencing, pool entry/egress, safety markings, diving boards, starting blocks, slides, food/drink facilities, drinking fountains, water supply, piping, drainage (including recirculation systems and appurtenances), sewerage systems, cross connections, and ambient temperature control.



## Facility Maintenance & Operation Scope of Work

- The Facility Maintenance & Operation Technical Committee examines all aspects that are required for the aquatic facility to be maintained and operated in a safe and sanitary manner to reduce illnesses and injuries. These aspects include: preventive maintenance; maintaining structural integrity of the facility; providing recommendations for seasonal start-up and closure procedures; routine maintenance procedures during the operating season for facility cleaning and disinfection, including food and beverage service areas; ensuring proper operation and maintenance of disinfection, lighting, ventilation, and electrical equipment; and record keeping requirements.



## Hygiene Facilities Scope of Work

- The Hygiene Facilities Technical Committee examines requirements established to provide and maintain hygienic safeguards at aquatic facilities, including: provision of showers and changing areas, toilet facilities, diaper changing areas, hand washing areas (with respect to location/distance/access and size/number), trash collection and disposal, and signage. The committee will also review the cleaning and disinfection of these and other areas (such as bathhouse floors and walls).



## Monitoring & Testing Scope of Work

- The Monitoring & Testing Technical Committee will examine water quality issues, including: sample collection, sampling locations, testing equipment, and sample analysis for the various disinfection methodologies, microbial quality, chemical quality, water clarity, temperature, saturation index, recirculation effects, and other special requirements.



## Operator Training Scope of Work

- The Operator Training Technical Committee will determine the essential components that must be covered in all operator training courses, operator qualifications, and operator certification requirements. Recommendations will be given for additional training needs, management, record keeping, staffing, certification verification, re-certification, and, where appropriate, continuing education (based on facility size and venue type). Individual courses will not be reviewed; instead, a list of essential components will be developed.



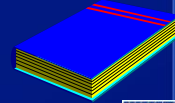
## Recirculation Systems & Filtration Scope of Work

- The Recirculation & Filtration Technical Committee will examine filter types and performance criteria, recirculation methodologies, equipment designs, and operating systems, including: inlets, overflow systems/gutters, skimmers, bottom drains/main drain systems, piping, pumps and strainers, flow control, flow rates/turnover, disinfection, water levels, stabilizers, feed equipment, water quality, sampling techniques and locations, and other filtration and recirculation aspects that may affect water quality.



## Regulatory Program Administration Scope of Work

- The Regulatory Program Administration Technical Committee develops guidance for health department-related, administrative aspects of aquatic facility concept, design, and operation. These aspects include: initial facility planning, permitting requirements, plan submission, plan review/approval/changes, facility alterations, equipment replacements, regulatory inspections, pool closures, and posting of public information.



## Risk Management/Safety Scope of Work

- The Risk Management / Safety Technical Committee will collaborate with all other applicable technical committees to ensure that safety-related aspects are addressed appropriately. Topics covered by this committee focus on chemical handling and storage requirements, including: operator training for chemical handling; chemical security; emergency protocol procedures; response plans for leaks, spills, or other accidental chemical releases; chemical disposal; availability of MSDS; record keeping requirements; and reporting under the Emergency Planning and Community Right-to-Know Act. The committee will also address other safety aspects including, user guidelines/signage (for example, diving boards, starting blocks, slides), emergency response and communications plans, severe weather closing, safety inspections, water depth, supervision requirements, pool water temperature, and other safety criteria.



## Ventilation & Air Quality Scope of Work

- The Ventilation & Air Quality Technical Committee will examine both the outdoor and indoor environmental requirements needed to provide appropriate air quality, including: ventilation, contamination burden, water chemistry, air quality, mechanical systems, facility heating, humidity control, monitoring and testing, record keeping, and design and construction aspects affecting the ventilation and air quality.

