Introducing Aquatic Inspector
A CDC iPad App to Streamline Pool Inspections

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Introduction
Aquatic Inspector Project Team

- **CDR Jasen Kunz, MPH** – *CDC Model Aquatic Health Code Team*

- **Sarah Pomerantz, MPH** – *CommunicateHealth Project Director*

- **Jocelyn Cozzo** – *CommunicateHealth Front End Web Developer*
Overview
National Environmental Health Association’s EH₂O Recreational Waters Virtual Conference

CDR Jasen Kunz, MPH
Centers for Disease Control and Prevention
Keeping the Health Benefits of Swimming While Reducing Disease, Disability, and Injury

- One of top activities in the US
  - 1/3 of population in the water annually
  - Over 1 billion visits annually
- Low impact exercise improves joint use with arthritis and cardiovascular health
- Improves mood, bone health, quality of life, reduces disability

For more information, see http://www.cdc.gov/healthywater/swimming/health_benefits_water_exercise.html:
Public Health Issues Detracting from Aquatics Benefits

- Drowning (~3500/people/yr)\(^1\)
- Spinal cord injuries from diving (~450/yr)\(^2\)
- Indoor air quality issues\(^3\)
- Pool chemical-associated injuries caused ~5000 people ED visits in 2012\(^4\)
- Waterborne outbreaks significantly increase\(^5\)
- High rate of pool (12.1%) and spa (11%) closures during routine inspections\(^6,7\)

Model Aquatic Health Code (MAHC)

- Free, science-based resource to improve health and safety in
  - Public swimming pools
  - Pools, hot tubs, and spas in hotels, apartment complexes, and neighborhoods
  - Waterparks
  - Other aquatic facilities
- Addresses design, construction, operation, maintenance, policies, and management.
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
- Significant variability in standards and requirements exist that are often outdated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 Scope

- All areas of public health concern
  - Illness, injury, drowning
  - Public venues
  - Water, air, & facility exposures that impact the health of swimmers and facility users
  - Leave other areas to building codes, etc.

- Facility types
  - Man-made, treated, recirculated water venues
  - Health care-based pools
  - Therapy pools
The Conference for the Model Aquatic Health Code

- 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
Project Goals
A standardized approach to inspections

- Bridge research and practice
- Use evidence-based guidance
- Streamline inspections and save time
Aquatic Inspector design

+ Completing the form
+ Using the cheat sheet

<table>
<thead>
<tr>
<th>Item #</th>
<th>Details</th>
<th>Correct by date</th>
<th>MAHC Code</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>OUT</td>
<td>12/15/17</td>
<td></td>
<td>Lorem ipsum dolor sit amet, alli consectetur in mel, illium tation el quo. Ex tibique eleifend qualesque nec, has te nihil verear instructior, mazim mollis intellagat mel ea. Ex diam percipius prodesset vel, scasevo a constituto ut quo, usu et simul dolore do mimp.</td>
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- OUT
- R
- COS
Benefits of Aquatic Inspector
Benefits of Aquatic Inspector

Unlike a paper form, Aquatic Inspector allows users to:

- Seamlessly access the full MAHC for reference
- Easily attach photos to reports
- Copy over facility and venue information within an inspection
- Validate fields to ensure they’re entered correctly
- Store reports for future use
Human-Centered Design
Involving end-users (your audience) in the design and development of a product, message, or campaign.
Aquatic Inspector and Human-Centered Design

- Technical expertise from CDC project team
- Tips and feedback from local pool inspector
- Upcoming usability testing
App Demo
Video 1

Loading, Home Screen, Start an Inspection, add Facility Information
Facility choose edit add new

View all facilities in the menu
Video 3
Add Venues
Pool/Spa: Venue 1
Flow meter present and operating

Pump: Failure to have all components of the recirculation system kept in operation (24 hours per day)

Recirculation pump: approved, good repair, operating*
Pool/Spa: Venues 2 and 3 and preview form
Video 6
Video 7

Water chemicals
Water quality
Preview table
Video 7
Video 8

Other tabs, form filled in for all venues
Video

New inspection with choose and add facility
How to use this app

How to Use This App

Welcome to the Model Aquatic Health Code App.

This app can help you complete and store Model Aquatic Health Code (MAHC) Inspection Reports quickly and easily. The MAHC form in this app is just like the paper form — and the full MAHC is available and fully searchable, too.

- On the Basics tab, you’ll be asked to fill in information about the facility, agency, and inspection. After you’ve completed these fields once, facility and agency information will fill in automatically on future forms.
- If an item is out of compliance, you must include a comment explaining why. You can also include additional information like a photo, related local/state code, and whether an item has been out of compliance in a prior inspection.
- As you complete your Inspection Report, you can preview the in-progress report at any time. You’ll also be able to preview the score and letter grade based on the information you’ve filled out so far.
- You don’t have to fill out the Inspection Report in any specific order — but you won’t be able to submit your report until you’ve completed all fields.
- When you’re ready to complete the Inspection Report, you’ll be able to preview it with the Operator. Then, you can both sign it in the app.

If you have questions or feedback about the app, contact MAHC@cdc.gov
Key Features Recap

- Ability to save Department and Facility information for easy future re-use
- Allows user to save and preview form at any step
- Includes related local code for inspectors who are required to record additional information
- Easy access to MAHC cheat sheet and full MAHC
Features coming soon
Features coming soon

+ Menu
+ Search the MAHC
+ Completed form
+ Summary reports
Challenges and limitations
Challenges and limitations

+ Multiple venues per inspection
+ Indicating where local code differs from the MAHC
+ Reporting is limited to summaries
Next steps and future opportunities
Next steps and future opportunities

- User testing and QA
- Available on iTunes
- Explore custom reporting needs through interviews with key stakeholders and users
- Recommendations for custom reporting functionality
Resources
Resources

- Model Aquatic Health Code
- Search The MAHC
Contact Us

+ Questions about developing the Aquatic Inspector app or human-centered design?
  + Email jocelyn@comunicatehealth.com or sarah@comunicatehealth.com

+ Questions about the Model Aquatic Health Code?
  + Email MAHC@cdc.gov