

Introducing Aquatic Inspector

A CDC iPad App to Streamline Pool Inspections

Presented by:

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

Sarah Pomerantz, MPH – *CommunicateHealth*

Jocelyn Cozzo – *CommunicateHealth*

January 18, 2017



Communicate Health

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



The Model Aquatic Health Code



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



Public Health Issues Detracting from Aquatics Benefits



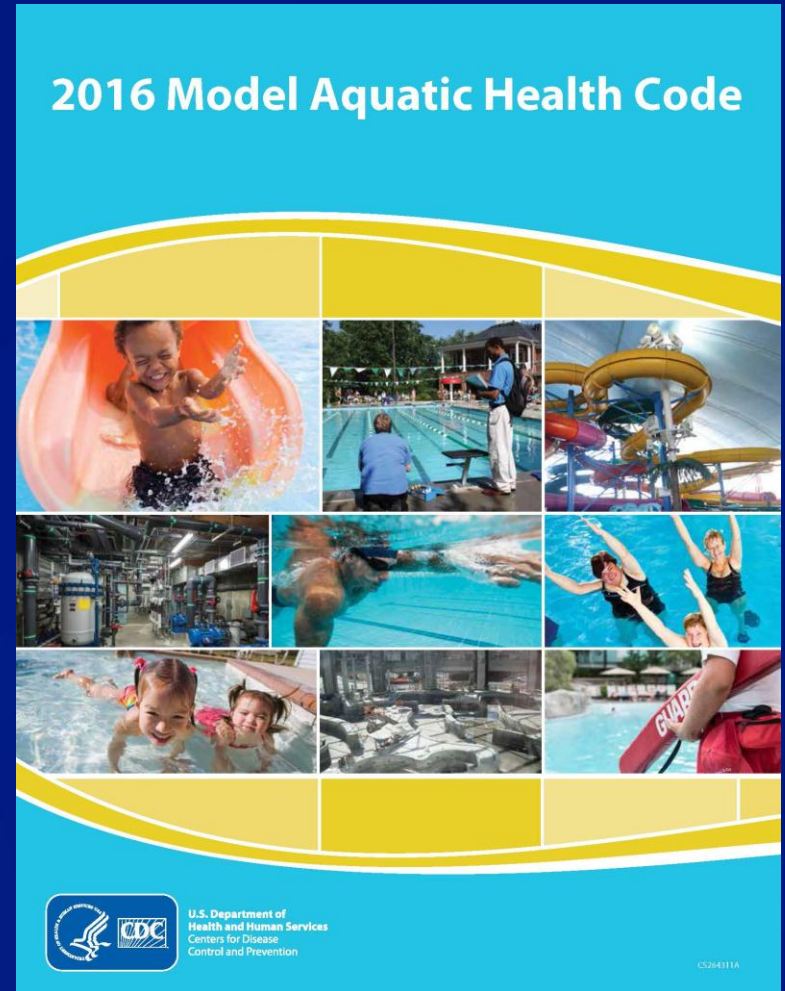
- ❑ Drowning ~3500/people/yr¹
- ❑ Spinal cord injuries from diving (~450/yr)²
- ❑ Indoor air quality issues³
- ❑ Pool chemical-associated injuries caused ~5000 people ED visits in 2012⁴
- ❑ Waterborne outbreaks significantly increase⁵
- ❑ High rate of pool (12.1%) and spa (11%) closures during routine inspections^{6,7}

¹ CDC. MMWR 2012;61:344-347; ² DeVivo, 2003; ³ Weisel et al. Environ Hlth Perspect. 2009;117:500-507; ⁴ Hlavsa et al. MMWR 2014;63:427-430; ⁵ Hlavsa et al. 2014. MMWR 63(1):6-10; ⁶ CDC. MMWR 2010;59:582-7; ⁷ CDC. MMWR Morb Mortal Wkly Rep. 2004;53(25):553-555.



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 pools¹
- ❑ Significant variability in standards and requirements exist that are often outdated
- ❑ Significant time and resources spent by individual jurisdictions to create and update codes

1. National Association of County and City Health Officials, 2013.

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



Driven by your expertise.



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

OUT = out of compliance R = Repeat COS = Corrected on Site				
Item #	Details	Correct by date	MAHC Code	Comments
2	☐ OUT ☐ R ☐ COS	12/15/17		Lorem ipsum dolor sit amet, alii consetetuer in mei, illum tation ei quo. Ex tistique eleifend qualisque nec, has te nisl verear instructor, mazim mollis intellegebat mel ea. Ex diam periculis prodesset vel, scaevola constituto ut quo, usu et simul dolore do ming.
				
	☐ OUT			



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

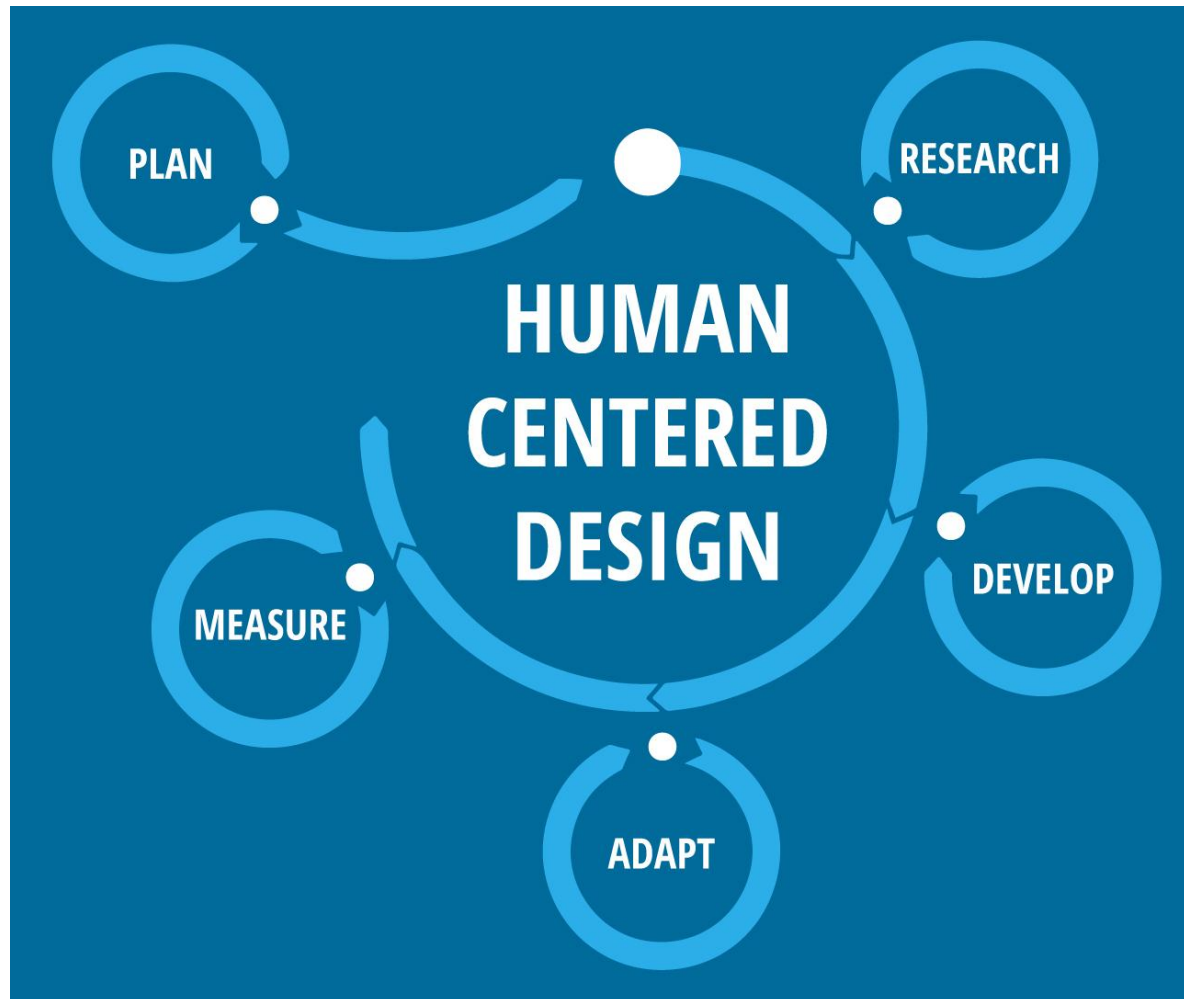


Human-Centered Design



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



Video 1



Video 2+3

Facility choose edit
add new

View all facilities in
the menu



Video 2



Video 3





Add Venues



Video 4





Pool/Spa: Venue 1



Video 5



i Flow meter present and operating

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


MAHC Section

☐
IN

☐
OUT

☐
N/A

☐
N/O

i Recirculation pump: approved, good repair, operating*


MAHC Section

☐
IN

☐
OUT

☐
N/A

☐
N/O



Video 6

Pool/Spa: Venues 2
and 3 and preview form



Video 6





Water chemicals
Water quality
Preview table



Video 7





Other tabs, form
filled in for all venues



Video 8



Video 9

New inspection with
choose and add
facility



Video 9



How to use this app

Help

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

3:09 PM 72%

Saved Preview Form Complete Form

Equipment/
Chemical Room

Hygiene
Facilities

Records
Room

General

Identifier: pool1 Previous Score: N/A

Identifier: pool2 Previous Score: N/A

Additional Venue (Optional)

Type: 1

Time Out:

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

 Flow meter present and operating


MAHC Section

☐ IN ☐ OUT ☐ N/A ☐ N/O

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

 Recirculation pump: approved, good repair, operating*


MAHC Section

☐ IN ☐ OUT ☐ N/A ☐ N/O



Features coming soon



Features coming soon

- + Menu
- + Search the MAHC
- + Completed form
- + Summary reports

OUT = out of compliance R = Repeat COS = Corrected on Site				
Item #	Details	Correct by date	MAHC Code	Comments
2	☐ OUT ☐ R ☐ COS	12/15/17		Lorem ipsum dolor sit amet, alii consetetur in mei, illum tation ei quo. Ex tistique eleifend qualisque nec, has te nisl verear instructor, mazim mollis intellegebat mel ea. Ex diam periculis prodesset vel, scaevola constituto ut quo, usu et simul dolore do ming.
				
	☐ OUT			



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@communicatehealth.com or sarah@communicatehealth.com
- + Questions about the Model Aquatic Health Code?
- + Email MAHC@cdc.gov

