

# Welcome to the Model Aquatic Health Code Network Webinar

Aligning Inspections with the MAHC:  
Introducing CDC's New App, Aquatic Inspector  
Featured Presenter: Jasen Kunz, MPH, CDC National Center for Environmental Health  
Tuesday, March 27, 2018

Thank you for your interest and attendance!

*Please use your computer speakers to listen to today's presentation*

*Due to the number of attendees, please only submit questions and comments via the chat box*

We will begin at 1:00 PM Eastern

# Updates from NACCHO

## Next Webinar: May 2018

- Healthy and Safe Swimming Week
- Join the MAHC Network today! Email your request to [MAHCnet@naccho.org](mailto:MAHCnet@naccho.org)

## Ongoing survey evaluation of MAHC Webinar Series

- We want your feedback!
- To give your opinion, sign up to be part of the MAHC Network

## Technical Assistance in Vector Control

- Applications open this week!
- Follow @NACCHOalerts on Twitter for more information
- Visit <https://www.naccho.org/programs/environmental-health/hazards/vector-control> to apply!

## Model Aquatic Health Code Network (MAHC) Webpage

- <http://www.naccho.org/programs/environmental-health/hazards/water/model-aquatic-health-code-mahc-network>
- Archived webinars & MAHC resources

**MAHC NETWORK**  
**March 27, 2018**  
**CMAHC UPDATES**

**Douglas Sackett**  
**Executive Director**  
**Council for the Model Aquatic Health Code**

# CMAHC UPDATES

## Committees

- ❑ **New committees established**
  - Annex Revision and Update **Standing Committee**
  - Indoor Aquatic Facility Ventilation Design and Air Quality **Ad Hoc Committee**
  
- ❑ **Additional committees planned**
  - CMAHC/APSP **Standing Committee**
  - Spray Ground/Spray park (Interactive Water Venue) Design **Ad Hoc Committee**
  - Pool Shell Design **Ad Hoc Committee**

# **CMAHC UPDATES**

## **Committees**

- ❑ **Annex Revision and Update **Standing Committee****
  - **Objectives and Outcomes**
    - **Expand and improve the science- and evidence-based language in the Annex that is key support for MAHC adoption and MAHC users.**
      - **Review the MAHC Code and Annex to determine if existing Annex content needs updating and, where no Annex information is provided, if content is needed.**
      - **Identify subject matter experts to update and/or write new Annex sections**
      - **Manage completion of Annex language by subject matter experts**

# **CMAHC UPDATES**

## **Committees**

- **Indoor Aquatic Facility Ventilation Design and Air Quality **Ad Hoc Committee****
  - **Objectives and Outcomes**
    - **Identify and assess the factors affecting air quality at indoor aquatic facilities, including:**
      - **Air handling/air distribution system design, effectiveness, and operation**
      - **Water quality/water chemistry**
      - **Pool water treatment operation and maintenance**
      - **Pool types (flat water, agitated water, water features, hot water)**
        - **Evaporation rate calculation.**
      - **Bather load**
      - **Spectator areas**

# **CMAHC UPDATES**

## **Committees**

- ❑ **Indoor Aquatic Facility Ventilation Design and Air Quality **Ad Hoc Committee****
  - **Objectives and Outcomes (continued)**
    - **Review and evaluate current Model Aquatic Health Code (MAHC) requirements to determine if identified factors affecting air quality are adequately addressed.**
    - **Develop revisions to the MAHC design and operational standard/best practice recommendations and corresponding Annex content to address ventilation/air quality design and operational criteria, as appropriate**

## MAHC MEMBERSHIP

- ❑ **All 2015-2017 memberships expired on Nov. 19, 2017**
- ❑ **To renew:**
  - **Go to the membership sign-up form at <https://cmahc.org/membership-signup-form.php>**
    - **can also be found by clicking on the “Join, Sponsor, and Get Involved” button on the Home page**
    - **click on “Become a Member”**
    - **next click on “Sign up using our secure form”**
    - **If you have been a member, at the top of the form check the “Check if Renewal” box**
    - **When prompted, fill in your email address and password**
    - **enter payment information and click on “Submit Membership”**

## Contact Information

**Doug Sackett**

**Executive Director, CMAHC**

**DouglasSackett@cmahc.org**

**Phone : 678-221-7218**

**MAHC**  
**More Information: Search on**  
**"CDC MAHC" or visit the**  
**Healthy Swimming MAHC**  
**Website: [www.cdc.gov/mahc](http://www.cdc.gov/mahc)**  
**Email: [mahc@cdc.gov](mailto:mahc@cdc.gov)**

**CMAHC**  
**More Information: Search on**  
**"CMAHC" or visit the CMAHC**  
**Website: [www.cmahc.org](http://www.cmahc.org)**  
**Email: [info@cmahc.org](mailto:info@cmahc.org)**



# Introducing Aquatic Inspector

## A CDC iPad App to Streamline Pool Inspections

Presented by:  
CDR Jasen Kunz, MPH

*MAHC Network Webinar March 27, 2018*



# INTRODUCTION

# Background

- **68% of local health depts regulate, license or inspect recreational water including public pools (NACCHO, 2016)**
- **Environmental health practitioners prevent illness and injuries at aquatic facilities through inspections and code enforcement**



## Background (cont'd)

- **2/3 of adults, who regularly participate in aquatics or whose children do, don't know that they can ask for inspection scores for individual public aquatic venues (Hlavsa et al., 2014)**
- **Posting inspection scores online and on site can increase public awareness and help the public determine which facilities to use**

# The Power of Inspection Data

- **Environmental health programs can help direct enforcement (e.g., risk-based inspections) and education efforts by using inspection data to**
  - Monitor trends in violations, closures, and out-of-range readings overall and by specific pool settings (e.g., hotel, waterpark) and venues (hot tub/spa vs. pool)
  - Measure the impact of the aquatic inspection program on reducing violations and closures

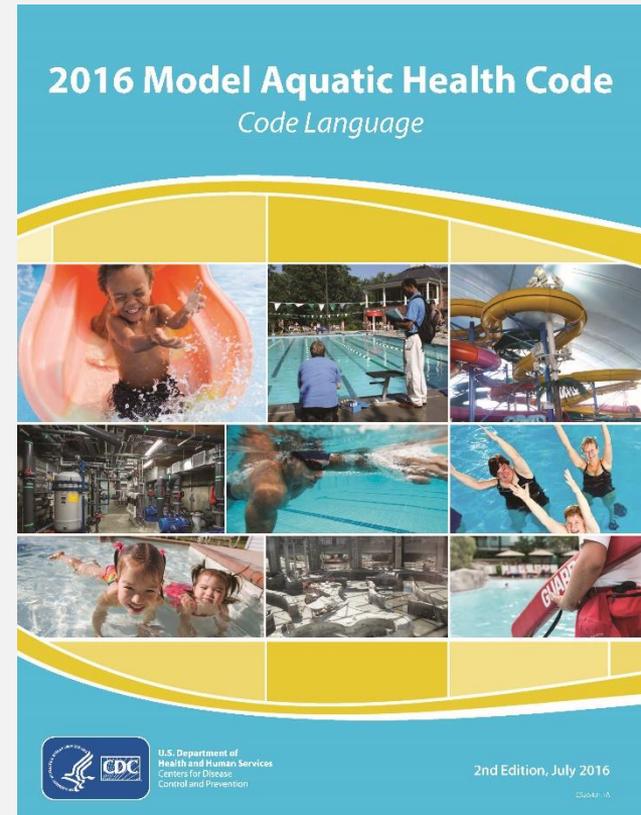
# Standardized Approach to Inspections

- **Inspector training is critical to conducting a standardized inspection (MAHC Inspector Training coming soon!)**
- **Using a model inspection form is key to analyzing inspection data (MAHC Model Inspection Form)**
- **Aquatic Inspector puts the MAHC Model Inspection Form at your fingertips**

# PROJECT GOALS

# Standardized Approach to Inspections

- Use evidence-based MAHC guidance, Inspection Form and Cross-Reference Guide to conduct inspections
- Streamline inspections and save time
- Analyze inspection data to drive decision making





**What tools are you currently  
using to conduct aquatic  
inspections?**

# Aquatic Inspector Design

- Based on the MAHC Model Inspection Form, and Marking Guide (coming soon!)

## Model Aquatic Health Code Aquatic Facility Inspection Report

IN = In compliance    OUT = Out of compliance    N/A = Not applicable    N/O = Not observed

Item	Descriptions (bold = critical violation)	Points	IN	OUT	N/A	N/O
1	Enclosure: fencing, walls, gates, and doors in good repair	10	✓			
2	Self-closing/self-latching gates or doors operational	10		x		
3	Protected overhead electrical wires/GFCI electrical receptacles	10			x	
4	Grab rails, ladders secured; shell, deck in good repair	5				x

**95%**

Score

**A**

Letter Grade

**BENEFITS**

# Benefits of Aquatic Inspector

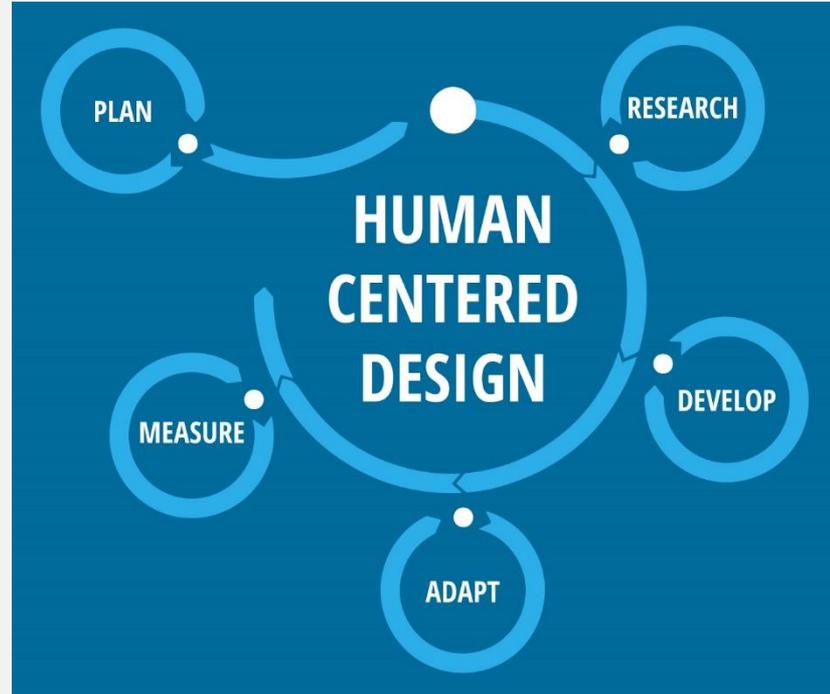
**Unlike a paper form, Aquatic Inspector allows users to**

- **Seamlessly access the full MAHC for reference to ensure consistent marking**
- **Easily attach photos to reports**
- **Copy facility and venue information within an inspection**
- **Validate fields to ensure they're entered correctly**
- **Store reports for future use**
- **Email reports on-site (need cellular connection)**

# 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

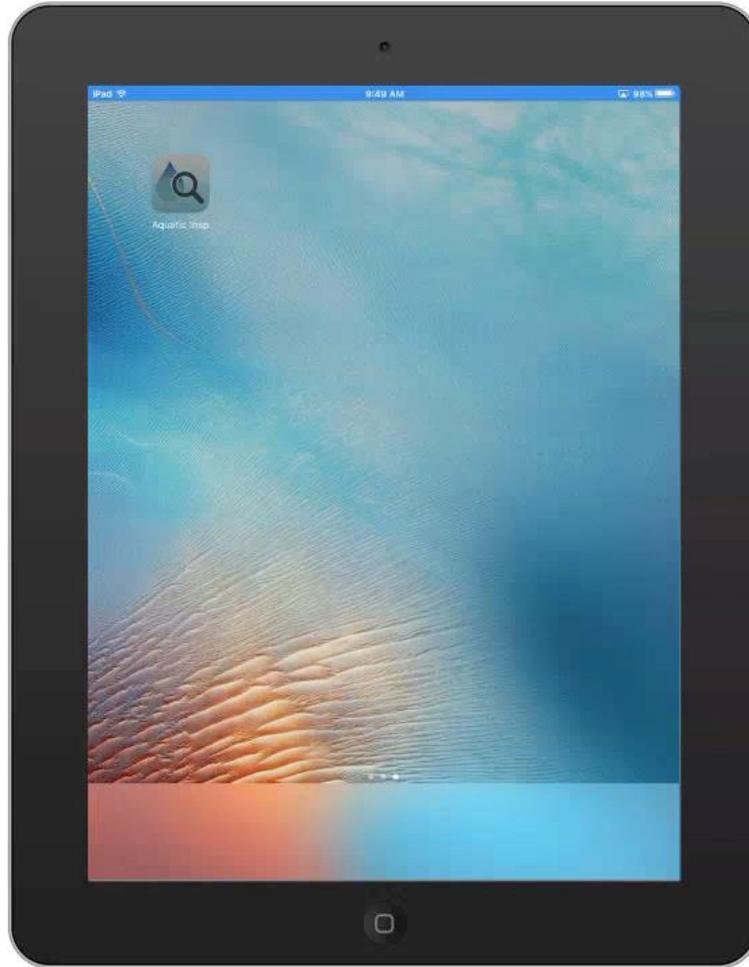
- **Technical expertise** from CDC
- **Tips and feedback** from local pool inspectors
- **Usability testing** with pool inspectors
- **Listening session** with aquatic health managers
- **Feedback** based on app use after launch

**APP DEMO**

# Video 1

**Launch, home screen, start an inspection, add facility information**

# Video 1



**Video**

**2**

**Facility: choose, edit, add new**

---

**View all facilities in the menu**

# Video 2

iPad 10:00 AM 95%

Preview Form Complete Form

Basics Pool/Spa Area Water Chemicals Equipment/Chemical Room Hygiene Facilities Records Room General

### Facility Information

City Pool 12 North St., Townsville, AL 12345 | Operator: Jane Smith [Edit](#)

Holiday Inn 100 Circle Ln, Townsville, AL 12345 | Operator: Sam Diaz [Edit](#)

[Choose](#) [Select Other](#) [Add New](#)

### Department Information

Name:  Phone:

Address:  City:

State:  Zip Code:  Website:

[Save](#)

### Inspection Information

Venue 1:  Type:  Identifier:  Previous Score: N/A

[Add Up to 2 Additional Venues \(Optional\)](#)

Purpose of Visit:  Risk Type:

Date: 12/2/2016 Time In: 9:49 AM Time Out:

**Video**

**3**

**All venues**

# Video 3

iPad 10:12 AM 94%

Preview Form Complete Form

Basics Pool/Spa Area Water Chemicals Equipment Hygiene Facilities Records Room General

**Facility Information**

City Pool  
12 North St  
Townsville, AL 12345

Operator: Jane Smith  
Permit Number: Qw12

Change

**Department information**

Name: Helen Hills Phone: (123) 456-7890

Address: 78 4th Ave City: Townsville

State: AL Zip Code: 12345 Website:

Save

**Inspection Information**

Venue 1: Identifier: Previous Score: N/A

Add Up to 2 Additional Venues (Optional)

Purpose of Visit: Risk Type:

Date: 12/2/2016 Time In: 9:49 AM Time Out:

**Video**

**4**

**Pool/Spa: Venue 1**

# Video 4

IPad 10:23 AM 91%

Saved Preview Form Complete Form

Basics Pool/Spa Area Water Chemicals Water Quality Equipment/Chemical Room Hygiene Facilities Records Room General

Venue: Main Pool Kids Pool Spray

### Pool/Spa Area

IN = In compliance OUT = Out of compliance N/A = Not applicable N/O = Not observed  
\* Critical violation: an imminent health hazard requiring immediate correction or closure

- 1 Enclosure: fencing, walls, gates and doors in good repair \***  
MAHC Section IN  OUT  N/A  N/O
- 1 Self-closing/self-latching gates or doors operational \***  
MAHC Section IN  OUT  N/A  N/O
- 1 Protected overhead electrical wires/GFCI electrical receptacles \***  
MAHC Section IN  OUT  N/A  N/O
- 1 Grab rails, ladders secured; shell, deck in good repair**  
MAHC Section IN  OUT  N/A  N/O
- 1 Float/safety line clearly present**  
MAHC Section IN  OUT  N/A  N/O
- 1 "Depth" & "no diving" markers; stair stripes; in good repair and visible**  
MAHC Section IN  OUT  N/A  N/O

**i** 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)**

**i** Recirculation pump: approved, good repair, operating\*



MAHC Section



IN



OUT



N/A



N/O

# Video 5

**Pool/Spa: Venues 2 and 3 and  
preview form**

# Video 5

10:25 AM 91%

Save Preview Form Complete Form

Basics Pool/Spa Area Water Chemicals Water Quality Equipment/Chemical Room Hygiene Facilities Records Room General

Venue: Main Pool Kids Pool Spray

### Pool/Spa Area

IN = In compliance OUT = Out of compliance N/A = Not applicable N/O = Not observed

\* Critical violation: an imminent health hazard requiring immediate correction or closure

**Enclosure: fencing, walls, gates and doors in good repair \*** MAHC Section IN OUT N/A N/O

**Self-closing/self-latching gates or doors operational \*** MAHC Section IN OUT N/A N/O

Comments: Gate hinge rusty, owner fixed Correct By Date:

Repeat:  Corrected on Site:  Related State/Local Code:

**Protected overhead electrical wires/GFCI electrical receptacles \*** MAHC Section IN OUT N/A N/O

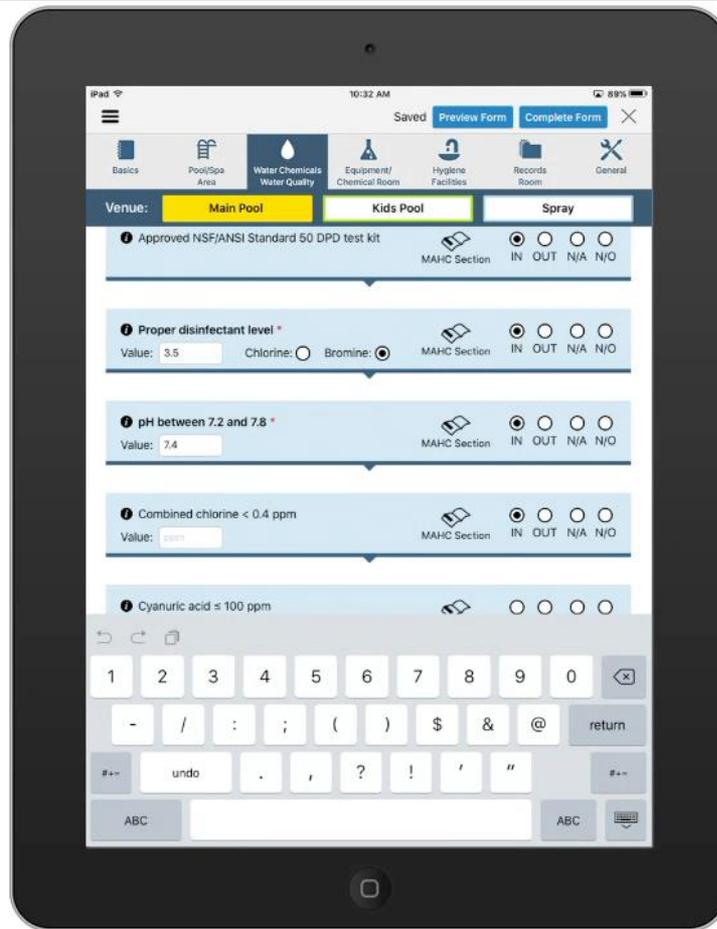
**Grab rails, ladders secured; shell, deck in good repair** MAHC Section IN OUT N/A N/O

**Float/safety line clearly present** MAHC Section IN OUT N/A N/O

# Video 6

**Water chemicals and water  
quality preview table**

# Video 6



# Video

## 7

**Other tabs, form filled  
in for all venues**

# Video 7

iPad 10:50 AM 84%

Saved [Preview Form](#) [Complete Form](#) X

Basics Pool/Spa Area Water Chemicals Water Quality Equipment/Chemical Room Hygiene Facilities Records Room General

Venue: **Main Pool** Kids Pool Spray

### Water Chemicals/Water Quality

IN = In compliance OUT = Out of compliance N/A = Not applicable N/O = Not observed  
\* Critical violation: an imminent health hazard requiring immediate correction or closure

**Approved NSF/ANSI Standard 50 DPD test kit** MAHC Section  IN  OUT  N/A  N/O

**Proper disinfectant level \*** MAHC Section  IN  OUT  N/A  N/O  
Value: 3.5 Chlorine:  Bromine:   
Comments:  Correct By Date:   
Repeat:  Corrected on Site:  Related State/Local Code:

**pH between 7.2 and 7.8 \*** MAHC Section  IN  OUT  N/A  N/O  
Value: 7.5

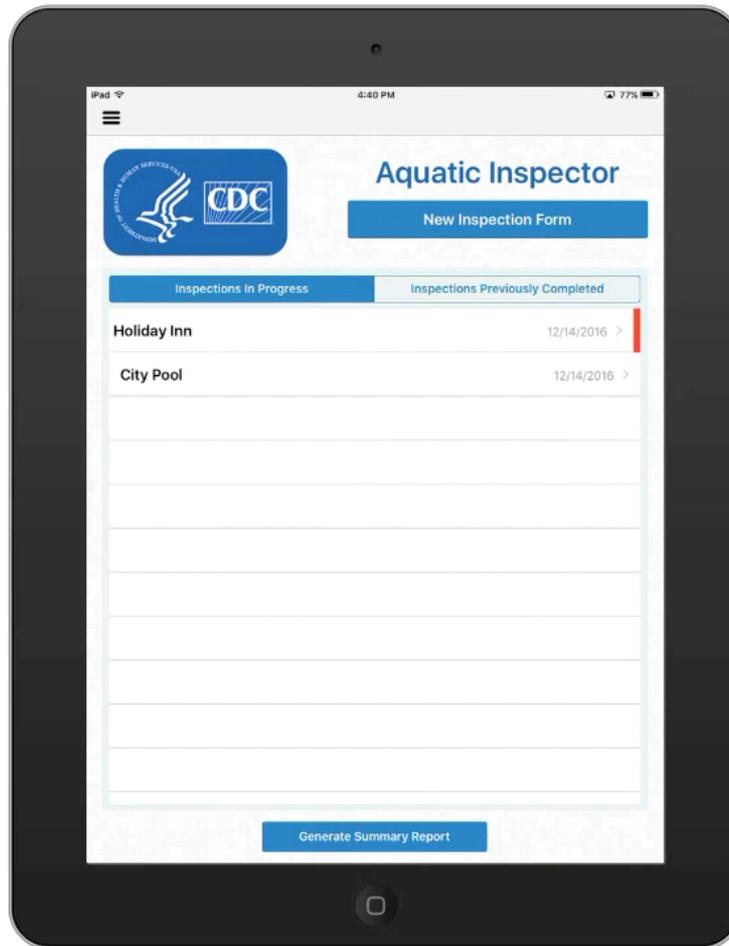
**Combined chlorine < 0.4 ppm** MAHC Section  IN  OUT  N/A  N/O  
Value: 3.5

**Cyanuric acid ≤ 100 ppm** MAHC Section  IN  OUT  N/A  N/O  
Value: 89

# Video 8

**New inspection with  
choose and add facility**

# Video 8



# How To Use This App

The image displays two screenshots of the Model Aquatic Health Code App. The left screenshot shows the 'Help' page, which includes a title 'How to Use This App', a welcome message, and a list of instructions. The right screenshot shows the main interface, which includes a navigation bar with icons for Equipment/Chemical Room, Hygiene Facilities, Records Room, and General. Below the navigation bar, there are buttons for 'Saved', 'Preview Form', and 'Complete Form'. The main area contains a form with fields for 'Identifier' (e.g., pool1, pool2) and 'Previous Score' (e.g., N/A). There is also a section for 'Additional Venue (Optional)' with a 'Type' dropdown set to '1' and a 'Time Out' dropdown.

iPad 72%

## 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](mailto:MAHC@cdc.gov)

3:09 PM

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:

# Search the MAHC

The screenshot displays the MAHC mobile application interface. The top navigation bar includes a back arrow, the title 'Search the MAHC', and buttons for 'Saved', 'Preview Form', and 'Complete Form'. Below the navigation bar is a search bar containing the text 'Filtration'. The main content area is divided into two columns. The left column lists search results with section headers and descriptive text. The right column shows a detailed view for an 'Outdoor pool' entry, including a legend for 'N/A = Not applicable' and 'N/O = Not observed', and a table for recording compliance status.

**Search Results (Left Column):**

- 4.7.1 Recirculation Systems and Equipment**  
All aquatic facilities shall be equipped and operated with a recirculation and **filtration** system capable of meeting the provisions outlined in MAHC 4.7.
- 4.7.2<sup>A</sup> Filtration**  
**Filtration** shall be required for all aquatic venues that recirculate water.
- 5.7.1 Recirculation Systems and Equipment**  
All components of the **filtration** and recirculation systems shall be kept in continuous operation 24 hours per day.
- 5.7.2 Filtration**  
Filters and filter media shall be listed and labeled to NSF/ANSI 50 by an ANSI-accredited certification organization.
- 5.12.6 Wading Pools**  
Spa **filtration** systems shall be operated 24 hours per day except for periods of draining, filling, and maintenance.
- 5.12.7 Spas**  
Spa **filtration** systems shall be operated 24 hours per day except for periods of draining, filling, and maintenance.
- 6.6.3 Imminent Health Hazards**  
Any of the following violations are imminent health hazards which shall require immediate correction or immediate pool closure:  
1) Failure to provide adequate supervisio...

**Outdoor pool Detail View (Right Column):**

N/A = Not applicable    N/O = Not observed  
requiring immediate correction or closure

Equipment	MAHC Section	IN	OUT	N/A	N/O
	MAHC Section	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	MAHC Section	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Summary Reports

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

# Key Features Recap

- Save Department and Facility information for easy future re-use
- 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

<p><b>i</b> Flow meter present and operating</p> <p><b>Pump: Failure to have all components of the recirculation system kept in operation (24 hours per day)</b></p>	<p> <a href="#">MAHC Section</a></p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p><b>i</b> Recirculation pump: approved, good repair, operating*</p>	<p> <a href="#">MAHC Section</a></p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# CHALLENGES AND LIMITATIONS

# Challenges and Limitations

- **Indicating where local code differs from the MAHC**
- **Reporting is limited to summaries**

**NEXT STEPS AND FUTURE OPPORTUNITIES**

# Next Steps and Future Opportunities

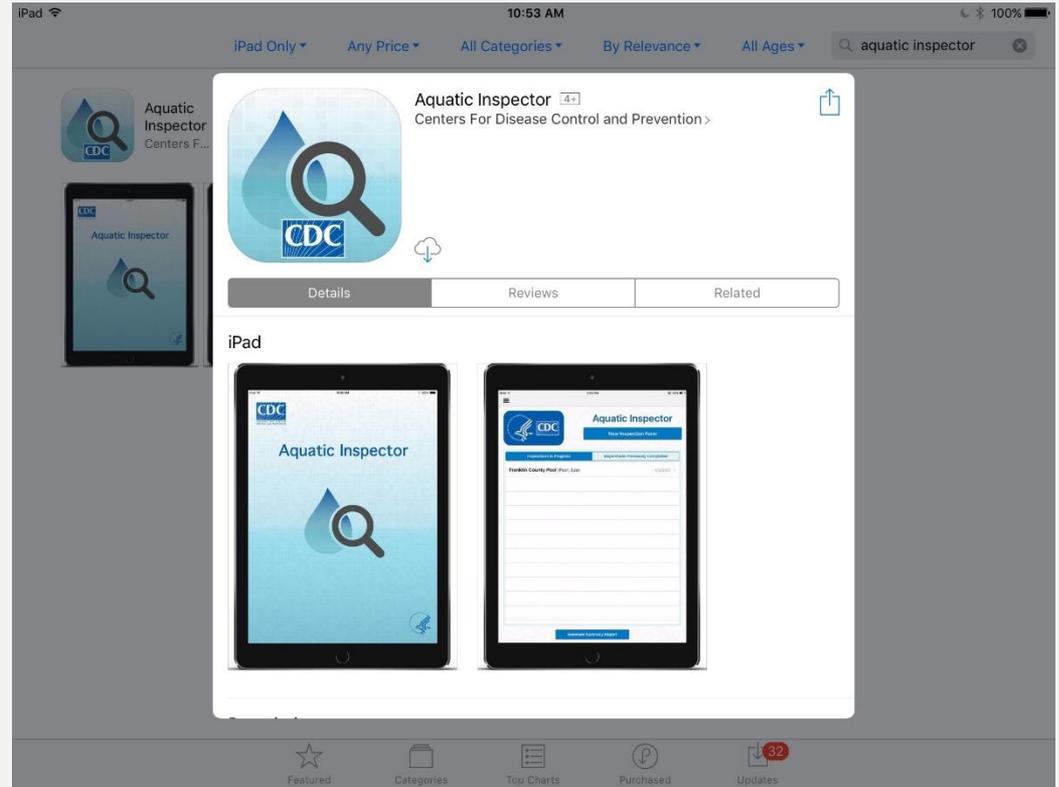
- **Available for free on iTunes**
- **App updated based on:**
  - Latest iOS releases
  - 2018 MAHC
  - Bug fixes
  - User feedback
- **Data vendors can use MAHC app content/layout to update existing software packages**



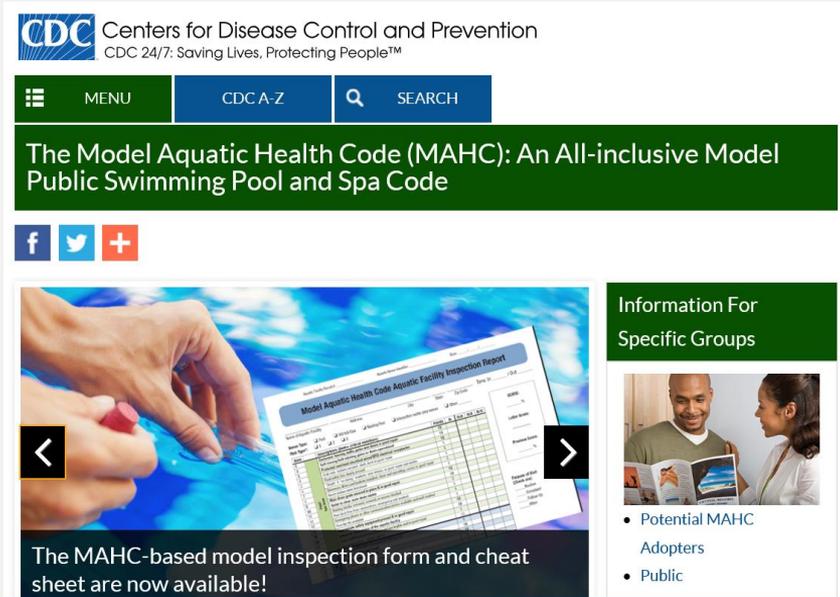
# RESOURCES

# Download the App!

- Search for “Aquatic Inspector” from App Store on iPad



# More Resources



**CDC** Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™

MENU CDC A-Z SEARCH

## The Model Aquatic Health Code (MAHC): An All-inclusive Model Public Swimming Pool and Spa Code

f t +



The MAHC-based model inspection form and cheat sheet are now available!

### Information For Specific Groups

- Potential MAHC Adopters
- Public

## Model Aquatic Health Code

[www.cdc.gov/mahc](http://www.cdc.gov/mahc)



**CMAHC** COUNCIL FOR THE MODEL AQUATIC HEALTH CODE  
*Driven by your expertise.*

The Council for the Model Aquatic Health Code (CMAHC)

Enter Search Term Search

Sign In

### Search The MAHC

MAHC Version:  Select MAHC Version  
Per Page:  10 Per Page

- View the Table of Contents
- View the MAHC Glossary
- View the MAHC Acronyms
- View the MAHC Footnotes
- View the MAHC Bibliography

Enter search term:

Click to Search the MAHC

Print MAHC Sections

**Find 2017 Info On**

**Get Email Updates**  
Enter your email address below to receive CMAHC email updates:  
Enter Email Address  
Submit Signup

**Contact Us:**  
The Council for the Model Aquatic Health Code  
PO Box 3121  
Decatur, GA 30031  
Phone: (678) 221-7218  
[Submit Contact Form](#)

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- Search the MAHC
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- The CMAHC Operational Process to Update the MAHC
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## Search the MAHC

[www.cmahc.org/search-the-mahc.php](http://www.cmahc.org/search-the-mahc.php)

# Acknowledgments

- Communicate Health
- Maggie Byrne: CDC
- CDR Joe Laco: CDC
- Pam Wigington: CDC
- Michele Hlavsa: CDC
- National Environmental Health Association

# Contact Us

- **Questions about the Model Aquatic Health Code or Aquatic Inspector?**
  - ▶ Email [MAHC@cdc.gov](mailto:MAHC@cdc.gov)
  - ▶ Email [JKunz@cdc.gov](mailto:JKunz@cdc.gov)

# QUESTIONS AND FEEDBACK

For more information, contact NCEH  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348      [www.cdc.gov](http://www.cdc.gov)  
Follow us on Twitter   [@CDCEnvironment](https://twitter.com/CDCEnvironment)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

