Model Aquatic Health Code Network July Webinar

Plug and Play: Using MAHC now!
A Risk Factor Study as an example of putting the MAHC into play.

Thank you for your interest and attendance!

Please use your computer speakers for the audio portion of this webinar.

Due to the number of attendees, please submit questions and comments via the Chat box

We will begin at 1:00 PM Eastern Time
July 26, 2017
NACCHO Updates

• Next Webinar: September 2017
• Take NEHA’s Assessing Recreational Water Health (assessment of aquatic inspection and data use procedures)
  ✓ [neha.org/node/59129](http://neha.org/node/59129)
  ✓ To better understand the health hazards presented by recreational waters

• Model Aquatic Health Code Network (MAHC) Webpage
  ✓ Archived webinars & MAHC resources
  ✓ Join the MAHC Network today!
    MAHCnet@naccho.org
Questions..............
MAHC NETWORK
July 26, 2017
CMAHC UPDATES

Douglas Sackett
Executive Director
Council for the Model Aquatic Health Code
MAHC UPDATE PROCESS

- **180 Change Requests (CR’S) submitted**
  - Available for review at: [https://cmahc.org/view-change-requests.php](https://cmahc.org/view-change-requests.php)

- **Technical Review Committee (TRC) CR review process underway**
  - TRC CR Review Meeting Schedule available to members on CMAHC website under the “Find 2017 Info On” burgundy button at the top right
  - CMAHC members can join conference call but as “listen only”.
MAHC UPDATE PROCESS

- Member comment period for influencing TRC reviews and recommendations remains open until the TRC completes their reviews
  - The CMAHC encourages members to submit comments by opening the specific Change Request and selecting to add a comment as rapidly as possible to have the greatest chance of influencing the technical reviews.
  - Members may wish to submit a comment form based on/in response to TRC discussions during a TRC CR Review Meeting conference call.
MAHC VOTE ON THE CODE CONFERENCE
October 17-18, 2017: Omni Interlocken Hotel, Denver, CO

- On-line Vote on the Code Conference Registration opened April 3.
- CMAHC Public Health members can take part in the MAHC update process to have their input heard by CDC
- You are encouraged to be on site at the conference for:
  - networking with your fellow CMAHC Public Health members including caucus discussions
  - discussion of all Change Requests, member comments, and Technical Review Committee recommendations
  - CMAHC annual updates
Contact Information

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MAHC
More Information: Search on “CDC MAHC” or visit the Healthy Swimming MAHC Website: www.cdc.gov/mahc
Email: mahc@cdc.gov

CMAHC
More Information: Search on “CMAHC” or visit the CMAHC Website: www.cmahc.org
Email: info@cmahc.org
THE FOLLOWING PRESENTATION HAS BEEN A COLLABORATIVE EFFORT BETWEEN THE FOLLOWING ORGANIZATIONS:

- VDH Virginia Department of Health
- Centers for Disease Control and Prevention
- County of Fairfax, Virginia
- NACCHO National Association of County & City Health Officials
- George Mason University
- CMAHC Council on Model Aquatic Health Code

Driven by your expertise.
Plug and Play: Using MAHC now!

A RISK FACTOR STUDY AS AN EXAMPLE OF PUTTING THE MAHC INTO PLAY
INTRODUCTION

• With a population of 1.2 million residents, there is a large population within Fairfax County that is exposed to the risks associated with water recreation facilities.

• Risks of injury and illness at public water recreation facilities include:
  
  • Drowning
  • Chemical injuries
  • Exposure to pathogens (Cryptosporidium and Pseudomonas)
INTRODUCTION

- Swimming is the 4th most popular recreational sports activity in the nation.¹
- Fairfax County has over 1,200 pool vessels.
- 333 (28%) of these vessels are wading pools, classified as high risk vessels by the Model Aquatic Health Code (MAHC).²
- The MAHC was published in 2014 to help bring standardization to swimming pool safety codes.³
- A risk-based approach to studying an issue is dynamic and more readily facilitates continual improvement. Effective environmental health regulation at the local level is best achieved by bringing together different facets with a connection to the issue.⁵
SYSTEMS THINKING WHERE WE WERE

• LOCAL WATER RECREATION FACILITIES ORDINANCE (LAST AMENDED IN 2009)
• MET MINIMUM MANDATES FOR POOL INSPECTIONS
• NO CLEARLY DEFINED POOL PROGRAM PERFORMANCE STANDARDS
• CHECKLIST INSPECTION FORM, NOT FOCUSED ON RISK FACTORS
• LACK OF UNIFORM INSPECTION PROCESS
• POOL INDUSTRY ENGAGEMENT LIMITED TO APPLICATION & INSPECTION
• GUIDANCE ON VARIANCES NOT AVAILABLE
SYSTEMS THINKING  WHERE WE WANT TO BE

A COMMUNITY-BASED PROGRAM WITH IMPROVED HEALTH OUTCOMES

• REGULATORY WATER RECREATION FACILITIES PROGRAM STANDARDS
• RISK FACTOR COMPLIANCE STATUS FORM (IN, OUT, NA)
• COMPLIANCE AND ENFORCEMENT PROCEDURES FOR REGULATORY CONTROL OF RISK FACTORS
• EDUCATION AND OUTREACH ACTIVITIES
• INDUSTRY ENGAGEMENT WITH ACTIVE MANAGERIAL CONTROL OF RISK FACTORS
• VARIANCE PROCEDURES, REVIEW PROCESS BASED ON CURRENT SCIENCE AND BEST PRACTICES IN THE MAHC
• PROPOSED AMENDMENTS TO LOCAL ORDINANCE – ADOPTION OF MAHC
SYSTEMS THINKING HOW TO GET THERE

**GOAL:** REDUCED RECREATIONAL WATER ILLNESS, INJURIES AND DEATHS

A SYSTEMS-THINKING APPROACH

- WHAT ARE THE “RISK FACTORS” IN TERMS OF WATER RECREATIONAL FACILITIES?
- HOW EFFECTIVE IS OUR PROGRAM AT “RISK FACTOR” SURVEILLANCE?
- DO WE HAVE A RISK-BASED INSPECTION PROGRAM?
- DO WE HAVE TWO-WAY COMMUNICATION IN TERMS OF RISK WITH THE COMMUNITY AND INDUSTRY (HEALTH PROMOTION ACTIVITIES)?
DATA & DECISION MAKING WATER RECREATION FACILITY RISK FACTORS

• DEFINITION?
  CONDITIONS MOST DIRECTLY ASSOCIATED WITH ILLNESS, INJURIES, AND DEATHS

• REFERENCES (HTTPS://WWW.CDC.GOV/MAHC/): MODEL AQUATIC HEALTH CODE (MAHC)

KEY ACTIVITY: COMPARISON OF LOCAL ORDINANCE WITH THE MAHC (FOCUS ON RISK FACTOR PROVISIONS)
DATA & DECISION MAKING RISK FACTOR SURVEILLANCE

• HOW IS INFORMATION ABOUT THE OCCURRENCE OF RISK FACTORS COLLECTED?
• WHAT DOES RISK FACTOR SURVEILLANCE INCLUDE?
• DOES THE INSPECTION REPORT FORM PROVIDE FOR TRACKING OF RISK FACTOR COMPLIANCE (IN, OUT, NA, NO)?

KEY ACTIVITY: COMPARISON OF INSPECTION REPORT FORM WITH MAHC AQUATIC FACILITY REPORT TO IDENTIFY GAPS IN TRACKING RISK FACTOR COMPLIANCE STATUS.
RISK FACTOR STUDY RISK-BASED INSPECTION PROGRAM

- Inspection report form clearly identifies risk factors
- Inspection report marking instructions for uniformity/consistency
- Training (classroom & field); inspection staff are pool operators
- Continuous quality improvement
- Compliance & enforcement procedures

**KEY ACTIVITY:** Revision of water recreation facility inspection report to improve risk factor surveillance.
**OUR PROCESS**

**ASSESS** THE MODEL AQUATIC HEALTH CODE (MAHC)

**COMPARE** WITH LOCAL POOL CODE

**FOCUS** ON RISK FACTOR PROVISIONS

**COMPARE** INSPECTION REPORT FORM WITH MAHC AQUATIC FACILITY REPORT
RISK FACTOR STUDY METHODS

OBJECTIVES:

1. RESEARCH RISK FACTORS TO WATER RECREATION FACILITIES AS DETERMINED BY THE CENTERS FOR DISEASE CONTROL AND PREVENTION AND OTHER U.S. COUNTIES

2. ANALYZE FOUR SETS OF FAIRFAX COUNTY POOL INSPECTION DATA OVER A 24-MONTH PERIOD TO IDENTIFY TRENDS IN NON-COMPLIANCE

3. COMPILE A WATER RECREATION FACILITIES RISK FACTOR REPORT CONTAINING A SUMMARY OF NON-COMPLIANCE WITH RISK FACTORS.

OBJECTIVE 1: IDENTIFY RISK FACTORS

- Gathered inspection forms from the CDC and 10 local jurisdictions
- Cross-walked Fairfax County Code and Inspection Form to the Model Aquatic Health Code recommendations

OBJECTIVE 2: ANALYZE POOL INSPECTION DATA

- Cleaned Fairfax County Pool Inspection Data
- Categorized inspection by facility type (swimming pool, spa, wading pool, and water features)
- Analyzed violation data for trends in the following categories: Number per Inspection, Facility Setting, Risk Factor Type, and Inspection Category

OBJECTIVE 3: COMPILE REPORT

- Summarized Results
- Compared with national violation trends
- Created recommendations for changes in Database Design, Pool Code, Inspection Form, and Inspection Process
CDC’s CRITICAL RISK FACTORS

- Adequate supervision of the aquatic facility
- Enclosure: Fencing, walls, gates and door in good repair
- Self-closing/latching gates or doors
- Protected overhead electrical wires/GFCI receptacles
- Main drain grate secured in place and in good repair
- Water is clear, main drain visible
- Proper disinfectant level
- PH between 7.2 and 7.8
- Recirculation pump: approved, good repair, operating
- Filter: approved, good repair
- Chemicals: labeled, stored safely, secured
- Substantial unauthorized alterations/equipment replacement
FAIRFAX COUNTY CRITICAL RISK FACTORS

- OPERATIONS PERMIT
- POOL OPERATOR PRESENT & CERTIFIED
- POOL OPERATOR DEMO OF KNOWLEDGE
- LIFEGUARD PRESENT & CERTIFIED
- WATER IS CLEAR, MAIN DRAIN VISIBLE
- PROPER DISINFECTANT LEVEL
- PH BETWEEN 7.2 AND 7.8
- SELF-CLOSING/LATCHING GATES OR DOORS

- WATER TEMPERATURE
- PROTECTED OVERHEAD ELECTRICAL WIRES/GFCI RECEPTACLES
- TELEPHONE (HARD WIRED)
- OBSTRUCTIONS/ENTRAPMENT
- RESCUE EQUIPMENT
- RECIRCULATION PUMP: APPROVED, GOOD REPAIR, OPERATING
- FILTERS: APPROVED, GOOD REPAIR
# Fairfax County Water Recreation Facility Inspection Form

<table>
<thead>
<tr>
<th>Item #</th>
<th>Fairfax Inspection Item</th>
<th>Critical Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OPERATIONS PERMIT</td>
<td>General Safety</td>
</tr>
<tr>
<td>2</td>
<td>RECORDS</td>
<td>General Safety</td>
</tr>
<tr>
<td>3</td>
<td>LIFEGUARD CERTIFICATION</td>
<td>Drowning</td>
</tr>
<tr>
<td>4</td>
<td>CPO CERTIFICATION</td>
<td>General Safety</td>
</tr>
<tr>
<td>5</td>
<td>PLACARDS/CONTAMINATION</td>
<td>Illness</td>
</tr>
<tr>
<td>6</td>
<td>CLARITY</td>
<td>Drowning</td>
</tr>
<tr>
<td>7</td>
<td>CHLORINE/BROMINE</td>
<td>Illness</td>
</tr>
<tr>
<td>8</td>
<td>pH</td>
<td>Illness</td>
</tr>
<tr>
<td>9</td>
<td>POOL SHELL</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>10</td>
<td>DIVING BOARD</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>11</td>
<td>HAND HOLD/STEPS/LADDERS</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>12</td>
<td>DECKING/COPING</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>13</td>
<td>ACCESS/FENCING</td>
<td>Drowning</td>
</tr>
<tr>
<td>14</td>
<td>THERMOMETER/TEMPERATURE</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>15</td>
<td>LIGHTING/GFCI</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>16</td>
<td>TELEPHONE/SIGNAGE</td>
<td>General Safety</td>
</tr>
<tr>
<td>17</td>
<td>DEPTH MARKERS/LIFE LINE</td>
<td>Drowning</td>
</tr>
<tr>
<td>18</td>
<td>LIFEGUARD STANDS</td>
<td>Drowning</td>
</tr>
<tr>
<td>19</td>
<td>OBSTRUCTIONS/ CUT OFF</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>20</td>
<td>RESCUE/FIRST AID</td>
<td>Drowning</td>
</tr>
<tr>
<td>21</td>
<td>PPE/CARE</td>
<td>Nondrowning Injuries</td>
</tr>
<tr>
<td>22</td>
<td>RECIRCULATION SYSTEM</td>
<td>Illness</td>
</tr>
<tr>
<td>23</td>
<td>FILTER ROOM</td>
<td>Illness</td>
</tr>
<tr>
<td>24</td>
<td>FILTER(S)/GAUGE(S)/FLOW</td>
<td>Illness</td>
</tr>
<tr>
<td>25</td>
<td>PUMP(S)/STRAINER(S)</td>
<td>Illness</td>
</tr>
<tr>
<td>26</td>
<td>PIPING SYSTEM</td>
<td>Illness</td>
</tr>
<tr>
<td>27</td>
<td>MAIN DRAIN</td>
<td>Drowning</td>
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<tr>
<td>28</td>
<td>GUTTERS/SKIMMERS</td>
<td>Illness</td>
</tr>
<tr>
<td>29</td>
<td>DISINFECTION EQUIPMENT</td>
<td>Illness</td>
</tr>
<tr>
<td>30</td>
<td>BATHHOUSE</td>
<td>Illness</td>
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<tr>
<td>31</td>
<td>SHOWERS</td>
<td>Illness</td>
</tr>
<tr>
<td>32</td>
<td>DRINKING FOUNTAIN(S)</td>
<td>Illness</td>
</tr>
<tr>
<td>33</td>
<td>WADING POOL</td>
<td>General Safety</td>
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<tr>
<td>34</td>
<td>INTERACTION WATER FEATURE</td>
<td>General Safety</td>
</tr>
<tr>
<td>35</td>
<td>SAUNA STEAM</td>
<td>General Safety</td>
</tr>
</tbody>
</table>

This is a crosswalk of the Fairfax County inspection form items and the CDC critical risk factors.
FAIRFAX COUNTY VIOLATIONS BY INSPECTION CATEGORY 2014 - 2015

Swimming Pools
- Documentation: 7%
- Water Quality: 33%
- Safety Equipment and Construction: 27%
- Recirculation Equipment: 8%
- Other: 25%

Spas
- Documentation: 3%
- Water Quality: 24%
- Safety Equipment and Construction: 32%
- Recirculation Equipment: 19%
- Other: 22%

Wading Pools
- Documentation: 6%
- Water Quality: 24%
- Safety Equipment and Construction: 28%
- Recirculation Equipment: 22%
- Other: 20%
### Fairfax County Settings of Pool Vessels Closed Due to Violations During Routine Inspection 2014-2015

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Apartment/condominium</td>
<td>30</td>
</tr>
<tr>
<td>Municipal</td>
<td>15</td>
</tr>
<tr>
<td>Membership club</td>
<td>12</td>
</tr>
<tr>
<td>Hotel/motel</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>64</strong></td>
</tr>
</tbody>
</table>
RESULTS AND MOVING FORWARD

<table>
<thead>
<tr>
<th>Critical Risk**</th>
<th>Swimming Pools</th>
<th>Spas</th>
<th>Wading Pools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Number of Violations</td>
<td>%</td>
</tr>
<tr>
<td>Illness</td>
<td>50.0</td>
<td>1854</td>
<td>58.5</td>
</tr>
<tr>
<td>General Safety</td>
<td>22.8</td>
<td>846</td>
<td>17.9</td>
</tr>
<tr>
<td>Nondrowning Injury</td>
<td>14.0</td>
<td>520</td>
<td>15.2</td>
</tr>
<tr>
<td>Drowning</td>
<td>13.2</td>
<td>490</td>
<td>8.4</td>
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<tr>
<td>Total</td>
<td></td>
<td>3710</td>
<td>742</td>
</tr>
</tbody>
</table>

* N = 4,260 inspection reports

** This chart references Table 2 on critical illness and injury risk-minimizing MAHC elements in Hlavsa et al’s (2013) MMWR Surveillance Summary.¹
CONCLUSIONS RECOMMENDATIONS FOR THE INSPECTION FORM

1) SPECIFY AQUATIC FACILITY SETTING.

2) SPECIFY DISINFECTION TYPE.

3) SEPARATE NO LIFEGUARD VIOLATION INTO TWO SEPARATE ITEMS: CREDENTIAL AND PROOF OF CREDENTIAL.

4) SEPARATE PRESENCE OF CERTIFIED POOL OPERATOR AND DEMONSTRATION OF KNOWLEDGE.

5) INCLUDE ACTUAL NUMERIC VALUES MEASURED FOR BOTH TOTAL AND FREE DISINFECTION.

6) SPECIFY WHICH VIOLATION(S) LED TO IMMEDIATE CLOSURE.

7) STANDARDIZE INSPECTOR OBSERVATION STATEMENTS.

8) ADD ADDITIONAL MAHC CATEGORIZES TO INSPECTION FORM.
CONCLUSIONS: **OTHER RECOMMENDATIONS**

9) PRIORITIZE DATA ENTRY FOR INSPECTION ITEMS WITH GREATEST IMPACT ON PUBLIC HEALTH.

10) TEST WATER QUALITY OF ALL WADING POOLS DURING ALL INSPECTIONS.

11) INCREASE INSPECTION FREQUENCY FOR WADING POOLS, INTERACTIVE WATER FEATURES/SPRAY PADS, WATER PARKS.
RISK FACTOR STUDY

IDENTIFY
RISK FACTORS.

COMPARE
STARTING POINTS
MAHC AND CURRENT LOCAL CODE

DIRECTLY ASSOCIATE
DEFINE "RISK FACTORS"
DIRECTLY ASSOCIATED WITH ILLNESS, INJURIES & DEATH

RESULTS
COLLECT DATA
COMPARE INSPECTION REPORT WITH MAHC AQUATIC FACILITY REPORT

ANALYSE
CURRENT "RISK FACTOR ANALYSIS"
<table>
<thead>
<tr>
<th>RECORDS &amp; SUPERVISION</th>
<th>IN</th>
<th>OUT</th>
<th>N/A</th>
<th>RPT</th>
<th>CDI</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Operations Permit</td>
</tr>
<tr>
<td>2</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Pool Operator Certification</td>
</tr>
<tr>
<td>3</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Pool Operator Knowledge</td>
</tr>
<tr>
<td>4</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Lifeguard Certification</td>
</tr>
<tr>
<td>5</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Lifeguard Duties</td>
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<tr>
<td>6</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Records / Reporting</td>
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<tr>
<td>7</td>
<td>IN</td>
<td>OUT</td>
<td>N/A</td>
<td>RPT</td>
<td>CDI</td>
<td>Placards / Rules / Notices</td>
</tr>
</tbody>
</table>

IN = In compliance; OUT = Out of compliance; N/A = Not applicable; RPT = Repeat violation; CDI = Corrected during inspection
Model Aquatic Health Code

01 COUNCIL FOR THE MODEL AQUATIC HEALTH CODE (CMAHC)

02 WORK TOGETHER
FIND A PARTNER LOCAL JURISDICTION

03 SUCCESS
START TODAY!
THIS PRESENTATION

HAS BEEN A COLLABORATIVE EFFORT BETWEEN THE FOLLOWING ORGANIZATIONS:

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

CDC CENTERS FOR DISEASE CONTROL AND PREVENTION

COUNTY OF FAIRFAX VIRGINIA

NACCHO NATIONAL ASSOCIATION OF COUNTY & CITY HEALTH OFFICIALS

GEORGE MASON UNIVERSITY

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


Images:


