

## 2017 Model Practices

### Applicant Information

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### Model Practice Title

Please provide the name or title of your practice: \*

Columbus Public Health Pool and Spa Safety Tool Kit

### Practice Categories

Model and Promising Practices are stored in an online searchable database. Applications may align with more than one practice category. Please select all the practice areas that apply.: \*

☐ Access to Care

☐ Advocacy and Policy Making

☐ Animal Control

☐ Coalitions and Partnerships

☐ Communications/Public Relations

☐ Community Involvement

☐ Cultural Competence

☐ Emergency Preparedness

☒ Environmental Health

☐ Food Safety

☐ Global Climate Change

☐ Health Equity

☐ HIV/STI

☐ Immunization

☐ Infectious Disease

☐ Informatics

☐ Information Technology

☐ Injury and Violence Prevention

☐ Marketing and Promotion

☐ Maternal-Child and Adolescent Health

☐ Organizational Practices

☐ Other Infrastructure and Systems

☐ Organizational Practices

☐ Primary Care

☐ Quality Improvement

☐ Research and Evaluation

☐ Tobacco

☐ Vector Control

☒ Water Quality

☐ Workforce

Other::

Is this practice evidence based, if so please explain. :

Studies have shown a correlation between reduced violations and operator training. Most notably the authors of the Morbidity and Mortality Weekly Report (MMWR), "Violations Identified from Routine Swimming Pool Inspections(1)," concluded that the overall number over violations highlighted in the report showed a need for pool and spa staff training. A Nebraska study(2) also demonstrated that free chlorine violations and concurrent pH and free chlorine violations were twice as likely in local jurisdictions not requiring certified training. These studies have influenced the guidance provided in the Centers for Disease Control and Prevention (CDC) Model Aquatic Health Code (MAHC) which recommends training for all aquatic facility operators.

## Winnable Battles

To keep pace with emerging public health challenges and to address the leading causes of death and disability, CDC initiated an effort called Winnable Battles to achieve measurable impact quickly. Winnable Battles are public health priorities with large-scale impact on health and known effective strategies to address them. Does this practice address any CDC's seven Winnable Battles? If so, please choose from the following: \*

- |                                                 |                                          |                                                                    |                                  |                                                           |
|-------------------------------------------------|------------------------------------------|--------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Food Safety            | <input type="checkbox"/> HIV in the U.S. | <input type="checkbox"/> Nutrition, Physical Activity, and Obesity | <input type="checkbox"/> Tobacco | <input type="checkbox"/> Healthcare-associated Infections |
| <input type="checkbox"/> Motor Vehicle Injuries | <input type="checkbox"/> Teen Pregnancy  | <input checked="" type="checkbox"/> None                           |                                  |                                                           |

Overview: Provide a brief summary of the practice in this section (750 Word Maximum)

**Your summary must address all the questions below:**

- Brief description of LHD- location, demographics of population served in your community
- Describe public health issue
- Goals and objectives of the proposed practice
- How was the practice implemented/activities
- Results/Outcomes (list process milestones and intended/actual outcomes and impacts.
  - Were all of the objectives met?
  - What specific factors led to the success of this practice?
- Public Health impact of practice
- Website for your program, or LHD.

**750 Word Maximum**

Columbus Public Health's goal is to become proactive in its approach to preventing recreational water illnesses and reducing other aquatic safety risks. Columbus Public Health (CPH) created portable USB flash drive cards that contain easy-to-understand materials and visuals that are intended to educate operators about safe operation of recreational water venues. This innovative method of material distribution allowed CPH to provide comprehensive and detailed information about the basics of aquatic facility operation to all of the licensed aquatic facilities within our jurisdiction. The flash drive card contains materials within seven folders: Course Materials, Drowning Prevention, Fact Sheets, Forms, Signs, and Videos. A highlight of the included materials is a series of nine videos, which are titled: Contamination, Disinfectants, Filters and Flow, Record Keeping, Safety and Deck, Spas, Spray Grounds, Suction Outlet Compliance, and Water Chemistry. The videos were filmed at carefully selected aquatic facilities that are licensed by CPH and include a voice-over narrative written by CPH staff. The videos can be viewed individually and are also imbedded into appropriate sections of the PowerPoint presentation, "Pool and Spa Safety," as a way to supplement written lessons in the presentation. Other materials included on the flash drive that were created by CPH staff include a Pool and Spa Safety workbook, cyanuric acid fact sheet, water parameter / testing frequency chart, and safety signage. Through this practice, CPH intends to reduce aquatic facility safety risks to operators and patrons, as well as reduce recreational water illness outbreaks. By providing a portable flash drive that can remain at a facility, regardless of staff turnover, we feel this tool will help ensure aquatic venues are operated in a manner that will protect health and improve the lives of those in our community. CPH serves as the local health department for the City of Columbus, the largest city and capital of Ohio (15th largest in the United States) with a population of approximately 850,000 residents. CPH also serves as the local health agency for the City of Worthington, a suburban city just north of Columbus. CPH regulates nearly 800 public recreational water venues, including Bicentennial Park in the Scioto Mile, connecting the Arena District to the Scioto River and showcasing one of our city's most celebrated features—a stunning 15,000 square-foot interactive spray park. Columbus has realized remarkable growth over the last ten years and the trend is projected to continue. With the increasing popularity of recreational water use and new recreational water venues comes the need for trained pool operators to prevent illness and/or injury to residents, all in an effort to protect health and improve lives. Through analysis of CPH inspectional violation data - which is made available through the use of our inspection software, EnvisionConnect - inspection frequencies and violation trends are measured. Ensuring knowledgeable operators at public water recreational venues is a priority for recreational water safety success. Through the use of nationally recognized certification courses in pool operations, original educational materials, and no-cost seminars, CPH strives to ensure healthier and safer recreational water opportunities for the Central Ohio community. The challenge is providing outreach to a regulated community that experiences frequent turnover, largely seasonal and has operators of various levels of education and training. A primary objective at CPH is to assure the regulated community has the ability to access free training in aquatic operations providing the insight and fundamental skills to understand safe operation and grasping the regulations that govern their operations. The expected result of the created educational tools will benefit the public by having operators with a more focused understanding of basic operation and water chemistry. Better trained operators have been shown to operate facilities with fewer violations, which in turn leads to a reduction of risk of recreational water illnesses. Several peer reviewed studies have demonstrated operators who have received aquatic facility education operate a more compliant swimming pool, spa, or spray park and better protect the public from injury or illness. The new innovative proposal will increase operator knowledge and lead to venues remaining open and safe. In turn, more open facilities allow further promotion of swimming as a means of recreation and exercise. CPH sought expansion of our educational outreach by using innovative methods to reach recreational water venue operators. Specifically, by creating a recreational water operator training course available on a portable memory flash drive, we could reach all of the operators and provide instructions on the use of the material on an individual bases. CPH created a narrative course that is interspersed with tutorial video vignettes, highlighting more complex subject matter and providing visuals from our nationally-certified instructors to assist with learning. In addition, the memory drive contains a recreational water basic operations curriculum, which includes a course book that is designed as a quick, useful reference. Finally, fact sheets related to commonly encountered violations that have been developed by CPH are included on the media. CPH created educational tools on a portable memory flash drive and distributed the materials to approximately six hundred unique locations. The media was write-protected, downloadable and distributed to class attendees, operators at routine inspections, and newly opened recreational water venues. The timing of the project did not allow for in depth analysis of quantitative data pertaining to the effectiveness of the material, however, a study will be forthcoming with the next pool season. The intended public health impact would be a reduction in recreational water illnesses within the Central Ohio region. While that metric is riddled with confounding factors, one achievable metric would be measuring the impact on reduction of violations that likely cause an increased risk of recreational water illness or injury (e.g. disinfection levels, clarity). There is a growing body of research that highlights the positive physical and mental health impacts experienced by a person who is in and around water. By helping facilities stay open, more people will be able to enjoy the recreational water venues Columbus has to offer. The public's confidence in using recreational water venues is critical in ensuring that water is used as a media to recreate and exercise, which has positive impacts on public health. <https://www.columbus.gov/publichealth/programs/water-protection/>

## Responsiveness and Innovation

A Model Practice must be responsive to a particular local public health problem or concern. An innovative practice must be (1) **new to the field of public health (and not just new to your health department)** OR (2) **a creative use of an existing tool or practice**, including but not limited to use of an Advanced Practice Centers (APC) development tool, The Guide to Community Preventive Services, Healthy People 2020 (HP 2020), Mobilizing for Action through Planning and Partnerships (MAPP), Protocol for Assessing Community Excellence in Environmental Health (PACE EH). Examples of an inventive use of an existing tool or practice are: tailoring to meet the needs of a specific population, adapting from a different discipline, or improving the content.

- Statement of the problem/public health issue
- What target population is affected by problem (please include relevant demographics)
  - What is the target population size?

- What percentage did you reach?
  - What has been done in the past to address the problem?
  - Why is the current/proposed practice better?
  - Is current practice innovative? How so/explain?
    - Is it new to the field of public health
- OR**
- Is it a creative use of existing tool or practice:  
What tool or practice did you use in an original way to create your practice? (e.g., APC development tool, The Guide to Community Preventive Services, HP 2020, MAPP, PACE EH, a tool from NACCHO's Toolbox etc.)
  - Is the current practice evidence-based? If yes, provide references (Examples of evidence-based guidelines include the Guide to Community Preventive Services, MMWR Recommendations and Reports, National Guideline Clearinghouses, and the USPSTF Recommendations.)

## 2000 Word Maximum

Please state the Responsiveness and Innovation of your practice (2000 Word Maximum) : \*

With the increasing popularity of recreational water use and new recreational water venues comes the need for informed and trained pool operators to prevent illness and/or injury. Through analysis of CPH inspectional violation data - which is made available through the use of our inspection software, EnvisionConnect - inspection frequencies and violation trends are measured. Focus is placed upon areas of compliance where operator training or outreach may be needed. For example, in 2014, data showed high cyanuric acid residuals as a primary reason for closure and staff developed an informational fact sheet explaining proper use and management of cyanuric acid. This sheet was subsequently distributed to operators, which resulted in fewer closures for cyanuric acid violations for the rest of that pool season. The Environmental Health Division of CPH has proven to be a leader in both the national environmental health community and the State of Ohio. The division provides diverse offering of educational opportunities for recreational water venues in the Columbus metropolitan area. A knowledgeable pool operator at public water recreational venues is a priority for recreational water safety success. Through the use of nationally recognized certification courses in pool operations (e.g. Certified Pool Operator®), original educational materials, and no-cost seminars, CPH strives to ensure safer and healthier recreational water opportunities for the Central Ohio community. A fundamental objective at CPH is to assure the regulated communities are able to access free or low cost training in safe and sustainable operations. This objective translates to all environmental health programming demonstrating a core value at CPH; outstanding customer service. The populations of Columbus and Worthington are approximately 850,000 people. Within our jurisdiction, CPH regulates and licenses nearly 800 public pools, spas, and spray parks at around 600 facilities. The project goal was to reach out to all of our licensed facilities to provide them with educational tools to better protect our residents from injury or illness. All unique facility locations were provided a flash drive. In the past, aquatic operators were given paper handouts and showed proper operation of their systems during inspections. These handouts and training only covered a fraction of the information needed for operators to gain a comprehensive understanding of complex systems. CPH also employs several National Swimming Pool Foundation certified instructors to teach the Certified Pool Operator® course and trains approximately 60 operators annually. Finally, operators are encouraged to take a free three hour course held throughout the swimming season on basic operation and maintenance. While educational opportunities offered at CPH are well attended, training still does not reach enough operators. Turnover in the industry lends to information being lost through attrition. Having the flash drive stay with the facility allows the ownership or management group related to the recreational water facility to have a means by which to provide onsite training and set clear expectations related to operation and maintenance. The training material provided on the flash drive can supplemented with facility specific information that may be useful in training the individual identified as the operator. Further, a portable flash drive can be a reference point, with materials that can be printed. Finally, the diversity of the materials contained on the drive (e.g. videos, fact sheets) provide for an interesting and innovative way to receive information. The use of a flash drive to ensure operators have access to needed materials is innovative, to the best of our research. By diverting the need for access to the internet, this technique may be vital in the event of internet failure. This tool is portable, easy to access, and can be duplicated at will. We also wanted to provide educational videos that were filmed in licensed pool locations in Columbus. Since CPH staff helped create these videos we were able to use their expertise and experience to narrow in on topics specific to Central Ohio. Studies have shown a correlation between reduced violations and operator training. Most notably the authors of the Morbidity and Mortality Weekly Report (MMWR), "Violations Identified from Routine Swimming Pool Inspections(1)," concluded that the overall number over violations highlighted in the report showed a need for pool and spa staff training. A Nebraska study(2) also demonstrated that free chlorine violations and concurrent pH and free chlorine violations were twice as likely in local jurisdictions not requiring certified training. These studies have influenced the guidance provided in the Centers for Disease Control and Prevention (CDC) Model Aquatic Health Code (MAHC) which recommends training for all aquatic facility operators.

## LHD and Community Collaboration

The LHD should have a role in the practice's development and/or implementation. Additionally, the practice should demonstrate broad-based involvement and participation of community partners (e.g., government, local residents, business, healthcare, and academia). If the practice is internal to the LHD, it should demonstrate cooperation and participation within the agency (i.e., other LHD staff) and other outside entities, if relevant. An effective implementation strategy includes outlined, actionable steps that are taken to complete the goals and objectives and put the practice into action within the community.

- Goal(s) and objectives of practice

- What did you do to achieve the goals and objectives?
  - Steps taken to implement the program
- Any criteria for who was selected to receive the practice (if applicable)?
- What was the timeframe for the practice
- Were other stakeholders involved? What was their role in the planning and implementation process?
  - What does the LHD do to foster collaboration with community stakeholders? Describe the relationship(s) and how it furthers the practice goal(s)
- Any start up or in-kind costs and funding services associated with this practice? Please provide actual data, if possible. Otherwise, provide an estimate of start-up costs/ budget breakdown.

## 5000 words maximum

Enter the LHD and Community Collaboration related to your practice (5000 words maximum): \*

The expected result of our educational tools will benefit the public by ensuring all operators (1) [Morbidity and Mortality Weekly Report (MMWR) 59 (19), Violations Identified from Routine Swimming Pool Inspections --- Selected States and Counties, United States; 582-587, 2010] (2) [Buss BF, Safranek TJ, Magri JM, Török TJ, Beach MJ, Foley BP. Association between swimming pool operator certification and reduced pool chemistry violations --- Nebraska, 2005-2006. J Environ Health 2009; 71:36—40] have the opportunity to gain a better understanding of safe recreational facility operation. An anticipated benefit of this more full understanding of efficient and safe operation is reduced operation costs for facilities. Ultimately, a reduction in violations which reduces the risk of recreational water illnesses is the most substantive impact CPH hopes to achieve. Several peer reviewed studies have demonstrated operators who have formal aquatic facility training (e.g. CPO®) operates a more compliant swimming pool, spa, or spray park and better protect the public from injury or illness. CPH would hypothesize overall violation and closure rates for “critical” violations, those most likely to cause injury or illness, would decrease after implementation of this training initiative. The study of this potential impact will be performed in 2017. At Columbus Public Health, we sought expansion of our educational outreach by using innovative methods to reach recreational water venue operators. Specifically by creating a recreational water operator training course available on a portable memory flash drive, desired outreach would be realized. CPH created a narrative course that is interspersed with tutorial video vignettes, highlighting more complex subject matter and providing visuals from our nationally-certified instructors to assist with learning. In addition, the card contains a recreational water basic operations curriculum, which includes a course book that is designed as a useful reference for the aquatic venue operator. Fact sheets related to commonly encountered issues were developed and included on the media. CPH wanted to make enough portable flash drive devices to reach every aquatic facility in Columbus. If a property had multiple pools or spas, we chose to give one drive to each unique property. The manager of the facility has the ability to educate and provide the information to the employees of the facility even if there were multiple pools. The project started in July 2015 and concluded in June 2016. The development of the project ran into early 2016. CPH secured money to start the project initially by applying for the Dr. R. Neil Lowry Grant through the Association of Pool and Spa Professionals, and received \$5,000 to start the project. After the grant application process we were able to begin the development of the materials and videos. The flash drives were distributed by the end of July 2016. There were enough drives ordered to ensure all new facilities received the training materials as well. CPH engaged local stakeholders throughout the process of developing and implementing the project. Initially, staff members engaged with the pool and spa operators during inspections which provided insight as to the needs of the regulated concentrate on for educational materials. Class attendees were queried onsite trainings that CPH would host, to gain a better appreciation of their needs. Opening up the communication directly with these stakeholders was important in making sure we were delivering the information most desired by these individuals. Other city departments were engaged and assisted in the development of the materials, namely CPH Office of Public Affairs and Communication and the CTV Columbus Government Television office which performed the filming and editing of the video vignettes. CPH applied for and received a grant of \$5,000 from the Association of Pool and Spa Professionals as part of Dr. R. Neil Lowry Award. The cost of the flash drive cards was approximately \$1,794. The remaining money from the grant was used to pay for staff time and costs of traveling to State and National conferences to present the material. There was a substantial portion of staff time from multiples disciplines within CPH to create and organize the materials together. An estimated 610 hours among various employees were used to complete this project, costing approximately \$21,000 in direct costs.

## Evaluation

Evaluation assesses the value of the practice and the potential worth it has to other LHDs and the populations they serve. It is also an effective means to assess the credibility of the practice. Evaluation helps public health practice maintain standards and improve practice. Two types of evaluation are **process** and **outcome**. Process evaluation assesses the effectiveness of the steps taken to achieve the desired practice outcomes. Outcome evaluation summarizes the results of the practice efforts. Results may be long-term, such as an improvement in health status, or short-term, such as an improvement in knowledge/awareness, a policy change, an increase in numbers reached, etc. Results may be quantitative (empirical data such as percentages or numerical counts) and/or qualitative (e.g., focus group results, in-depth interviews, or anecdotal evidence).

- What did you find out? To what extent were your objectives achieved? Please re-state your objectives.
- Did you evaluate your practice?
  - List any primary data sources, who collected the data, and how (if applicable)
  - List any secondary data sources used (if applicable)
  - List performance measures used. Include process and outcome measures as appropriate.



- Describe how results were analyzed
- Were any modifications made to the practice as a result of the data findings?

## 2000 Words Maximum

Please enter the evaluation results of your practice (2000 Words Maximum): \*

While the initial objective of ensuring that all operators had equal access to the information was achieved, the work to evaluate the effectiveness of the project will continue. Inspections at facilities and conversations with operators since the drives were distributed have shown positive feedback on the materials. In order to fully measure the effectiveness of this educational tool, violation data will be monitored with an expectation that violations would be reduced on standard inspections. CPH intends to continue to evaluate the success of this project as more inspections are conducted by monitoring violation data and evaluating the use of the tool by the operators. In the summer of 2017, an intern will conduct a survey of operators to specifically gain feedback about use of the flash drive. The intended goal of fewer violations and pool closures will be examined by comparing violation data and approximate use of the media.

## Sustainability

Sustainability is determined by the availability of adequate resources. In addition, the practice should be designed so that the stakeholders are invested in its maintenance and to ensure it is sustained after initial development (*NACCHO acknowledges that fiscal challenges may limit the feasibility of a practice's continuation.*)

- Lessons learned in relation to practice
- Lessons learned in relation to partner collaboration (if applicable)
- Did you do a cost/benefit analysis? If so, describe.
- Is there sufficient stakeholder commitment to sustain the practice?
  - Describe sustainability plans

## 1500 Words Maximum

Please enter the sustainability of your practice (2000 Words Maximum): \*

A lesson learned in relation to this practice is that there a lot of time and manpower was put into creating this educational tool. CPH was fortunate to have the support and financial ability to create the instructional videos. Utilizing local facilities and technology to instruct pool operators was beneficial. Another vital lesson is to ensure the materials are made available on different media. Future direction will be to continue to offer and push operators to our website, where the information will be made available. As with other educational ventures on a variety of environmental health issues, cost benefit comes with prevention and further reduction of acute illness. While a specific cost benefit analysis has not been completed on this project, the potential benefit of prevention of illnesses would far outweigh any direct or indirect cost associated with the development in the materials. A study conducted in 2012(3), indicated that the cost of hospitalization due to Cryptosporidium infection was conservatively estimated at around \$16,000 per episode. So prevention of two hospitalizations a year would realize the value of such an educational program. The long term benefits of this project would far outweigh any direct or indirect costs of development and implementation. (3) [S. A. Collier , L. J. Stockman, L. A. Hicks, L. E. Garrison, F. J. Zhou, and M. J. Beach. Direct healthcare costs of selected diseases primarily or partially transmitted by water. Epidemiologic Infect. 2012 Nov; 140(11): 2003–2013.] New facilities will be given the educational materials early in the process of opening the facility, so that clear expectations can be established. Trainings will continue to be modified with current trends and information and this information will be distributed to facilities with instructions on what information needs to be replaced or corrected on the media. Staff members will meet with operators in regards to using the flash drives to ensure the information stays organized. Current information will also be posted on the CPH website. CPH will submit the model practice narrative electronically and also through regular mail and include several of the flash drives for review by the award panel.

## Additional Information

How did you hear about the Model Practices Program?: \*

- |                                                                               |                                               |                                                    |                                                                      |                                              |
|-------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------|
| <input checked="" type="checkbox"/> I am a previous Model Practices applicant | <input type="checkbox"/> At a Conference      | <input checked="" type="checkbox"/> NACCHO Website | <input type="checkbox"/> Public Health Dispatch                      | <input type="checkbox"/> Colleague in my LHD |
| <input type="checkbox"/> Model Practices brochure                             | <input type="checkbox"/> NACCHO Exhibit Booth | <input type="checkbox"/> NACCHO Connect            | <input type="checkbox"/> Colleague from another public health agency | <input type="checkbox"/> E-Mail from NACCHO  |
| <input type="checkbox"/> NACCHO Exchange                                      |                                               |                                                    |                                                                      |                                              |