Welcome to the

CDC's Model Aquatic Health Code Network Webinar

Using Environmental Health Data to Inform Pool Regulatory Efforts in the City of Long Beach, California

2/22/23

1:00 PM ET

Listen via your computer speakers or

Call: 301-715-8592 / Webinar ID: 895 2205 1370

Questions may be submitted/upvoted via the Q&A box.

This webinar is being recorded.

NACCHO

National Association of County & City Health Officials

Webinar Agenda

NACCHO
National Association of County & City Health Officials

NACCHO & CDC Announcements

Presentation: Using Environmental Health Data to Inform Pool Regulatory Efforts in the City of Long Beach, California

Questions & Answers

NACCHO Announcements

NACCHO
National Association of County & City Health Officials

View recent MAHC Network webinar recordings and slides at https://www.naccho.org/mahc

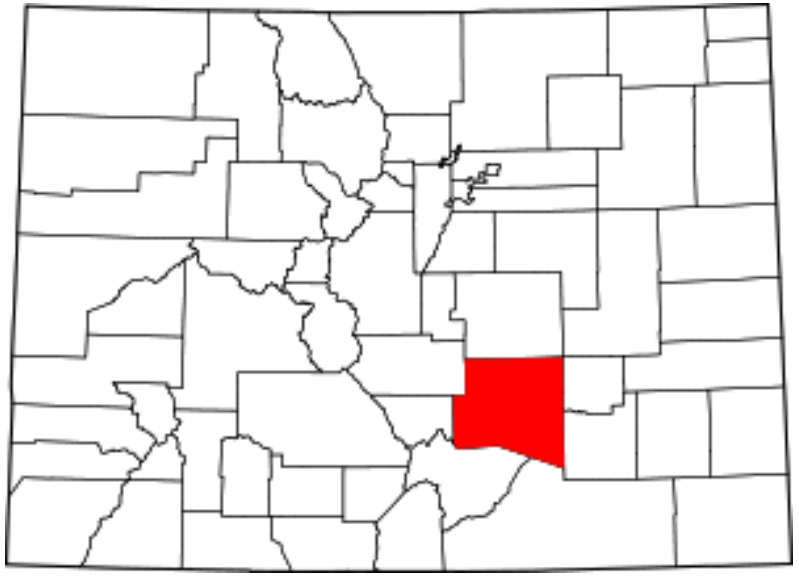
View all 35 MAHC Network webinar recordings at https://www.youtube.com/watch?v=8tiHVMCpKAQ&list=PLIMrymKEFdbeEPkoj2mStPeolFLhloYGc&pp=iAQB

NACCHO Announcements

NACCHO
National Association of County & City Health Officials

New Resource: Pueblo County MAHC Implementation Resource Library

- Explore resources that one LHD used when fully adopting and implementing the MAHC, including:
  - Inspection reports
  - Surveys and forms
  - Draft code
  - Board of Health presentations
  - Stakeholder newsletters



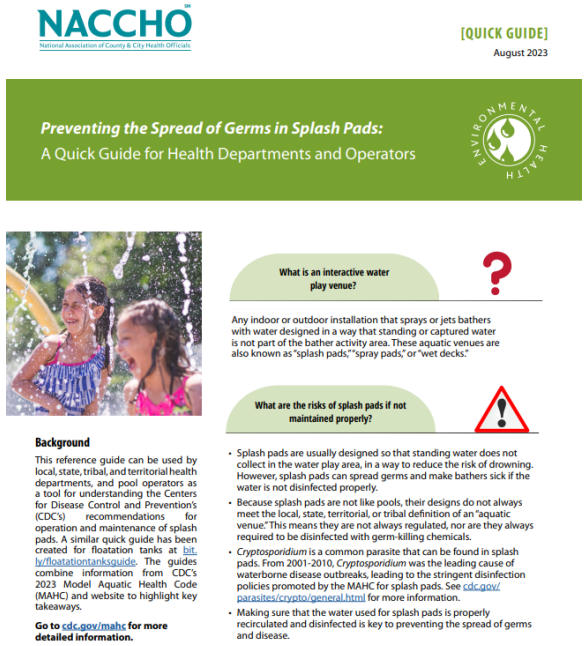
To access: Visit the NACCHO Toolbox at
https://toolbox.naccho.org/pages/tool-view.html?id=6014

Login or create a free MyNACCHO account to download as a ZIP file!

NACCHO Announcements

NACCHO
National Association of County & City Health Officials

New Resources: *MAHC Quick Guides* – Splash Pads and Floatation Tanks



NACCHO
National Association of County & City Health Officials

[QUICK GUIDE]
August 2023

Preventing the Spread of Germs in Splash Pads:
A Quick Guide for Health Departments and Operators

ENVIRONMENTAL HEALTH

What is an interactive water play venue?

Any indoor or outdoor installation that sprays or jets bathers with water designed in a way that standing or captured water is not part of the bather activity area. These aquatic venues are also known as "splash pads," "spray pads," or "wet decks."

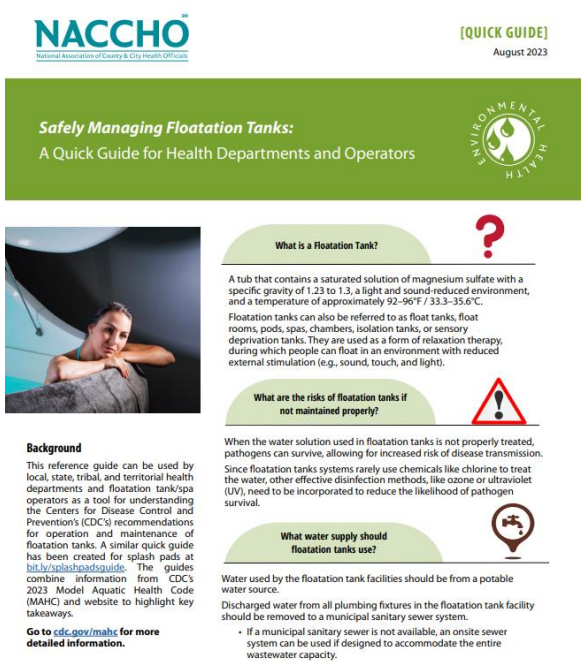
What are the risks of splash pads if not maintained properly?

- Splash pads are usually designed so that standing water does not collect in the water play area, in a way to reduce the risk of drowning. However, splash pads can spread germs and make bathers sick if the water is not disinfected properly.
- Because splash pads are not like pools, their designs do not always meet the local, state, territorial, or tribal definition of an "aquatic venue." This means they are not always regulated, nor are they always required to be disinfected with germ-killing chemicals.
- *Cryptosporidium* is a common parasite that can be found in splash pads. From 2001-2010, *Cryptosporidium* was the leading cause of waterborne disease outbreaks, leading to the stringent disinfection policies promoted by the MAHC for splash pads. See cdc.gov/parasites/crypto/general.html for more information.
- Making sure that the water used for splash pads is properly recirculated and disinfected is key to preventing the spread of germs and disease.

Background

This reference guide can be used by local, state, tribal, and territorial health departments, and pool operators as a tool for understanding the Centers for Disease Control and Prevention's (CDC's) recommendations for operation and maintenance of splash pads. A similar quick guide has been created for floatation tanks at bit.ly/floatationtanksguide. The guides combine information from CDC's 2023 Model Aquatic Health Code (MAHC) and website to highlight key takeaways.

Go to cdc.gov/mahc for more detailed information.



NACCHO
National Association of County & City Health Officials

[QUICK GUIDE]
August 2023

Safely Managing Floatation Tanks:
A Quick Guide for Health Departments and Operators

ENVIRONMENTAL HEALTH

What is a Floatation Tank?

A tub that contains a saturated solution of magnesium sulfate with a specific gravity of 1.23 to 1.3, a light and sound-reduced environment, and a temperature of approximately 92–96°F / 33.3–35.6°C.

Floatation tanks can also be referred to as float tanks, float rooms, pods, spas, chambers, isolation tanks, or sensory deprivation tanks. They are used as a form of relaxation therapy, during which people can float in an environment with reduced external stimulation (e.g., sound, touch, and light).

What are the risks of floatation tanks if not maintained properly?

When the water solution used in floatation tanks is not properly treated, pathogens can survive, allowing for increased risk of disease transmission.

Since floatation tanks systems rarely use chemicals like chlorine to treat the water, other effective disinfection methods, like ozone or ultraviolet (UV), need to be incorporated to reduce the likelihood of pathogen survival.

What water supply should floatation tanks use?

Water used by the floatation tank facilities should be from a potable water source.

Discharged water from all plumbing fixtures in the floatation tank facility should be removed to a municipal sanitary sewer system.

- If a municipal sanitary sewer is not available, an onsite sewer system can be used if designed to accommodate the entire wastewater capacity.

Background

This reference guide can be used by local, state, tribal, and territorial health departments and floatation tank/spa operators as a tool for understanding the Centers for Disease Control and Prevention's (CDC's) recommendations for operation and maintenance of floatation tanks. A similar quick guide has been created for splash pads at bit.ly/splashpadsguide. The guides combine information from CDC's 2023 Model Aquatic Health Code (MAHC) and website to highlight key takeaways.

Go to cdc.gov/mahc for more detailed information.

Visit
https://www.naccho.org/mahc to view and download!

CDC Announcements

CDR Joe Laco, MSEH, REHS/RS, CPO
Environmental Health Scientist, National Center for Environmental Health
Centers for Disease Control and Prevention (CDC)

Today's Presenter

NACCHO
National Association of County & City Health Officials

Robert Campbell, MBA
Consultant
R.S. Campbell Consulting, Inc.

Using Environmental Health (EH) Data to Inform Pool Regulatory Efforts

A Grant Program Funded by the Centers for Disease Control and Prevention to Strengthen Capacity to Detect, Prevent, and Control EH Hazards using Data-Driven, Evidence-Based Approaches

MAHC Network Webinar: February 22, 2024

Presented By: Juan Garcia, REHS, Water Quality Program; and Robert Campbell, Consultant, MBA

LONG BEACH HEALTH & HUMAN SERVICES

CITY OF LONG BEACH

City of Long Beach

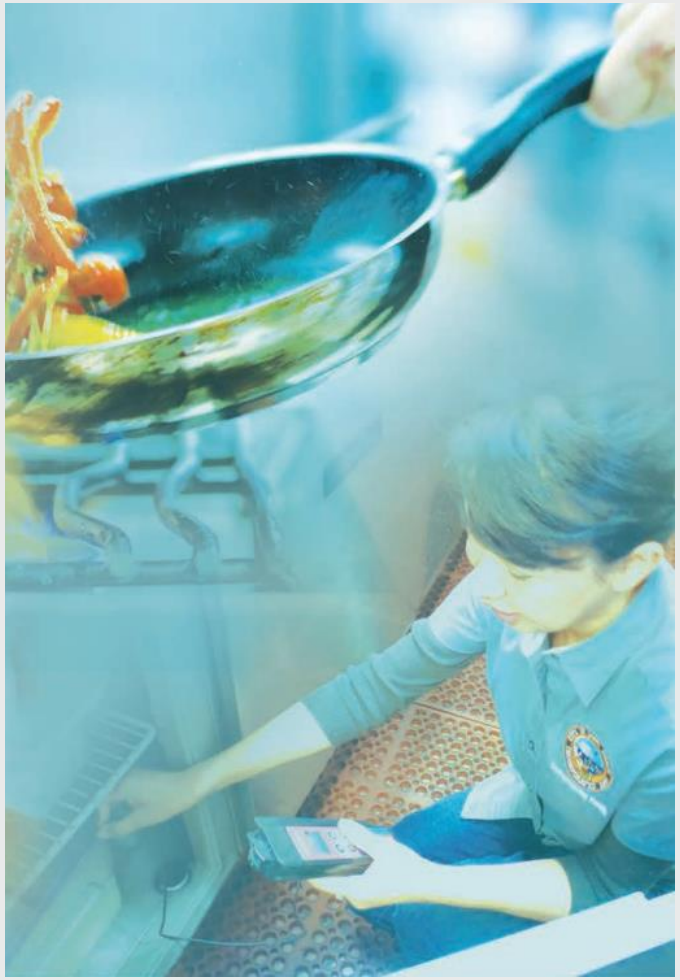
- Located in Southeastern Los Angeles County along the Pacific Ocean
- Home to a diverse population of nearly 470,000 people
- Import / export hub via Long Beach – Los Angeles Port Complex
- Established residential neighborhoods and commercial corridors
- Innovative industrial activity in aerospace and goods movement
- Tourist friendly with special events, conventions, and proximity to regional destinations
- 7 miles of coastline, recreational water, and bordered by two major rivers

Department of Health and Human Services

- One of three city-run health departments in California
- Promotes and creates a safe and healthy community to live, work, and play
- Data informed to establish priorities, inform practices, and focus resources
- Provides services that address adverse health conditions and events
- Utilizes an equity lens to assess, prioritize, and implement services

Environmental Health Bureau

Protects the public health by preventing diseases, unsanitary conditions, exposure to toxic substances, and by eliminating environmental hazards



Water Quality Program

Performs regular inspections and provides services to ensure water quality and safety requirements are met and the public is safe from environmental hazards

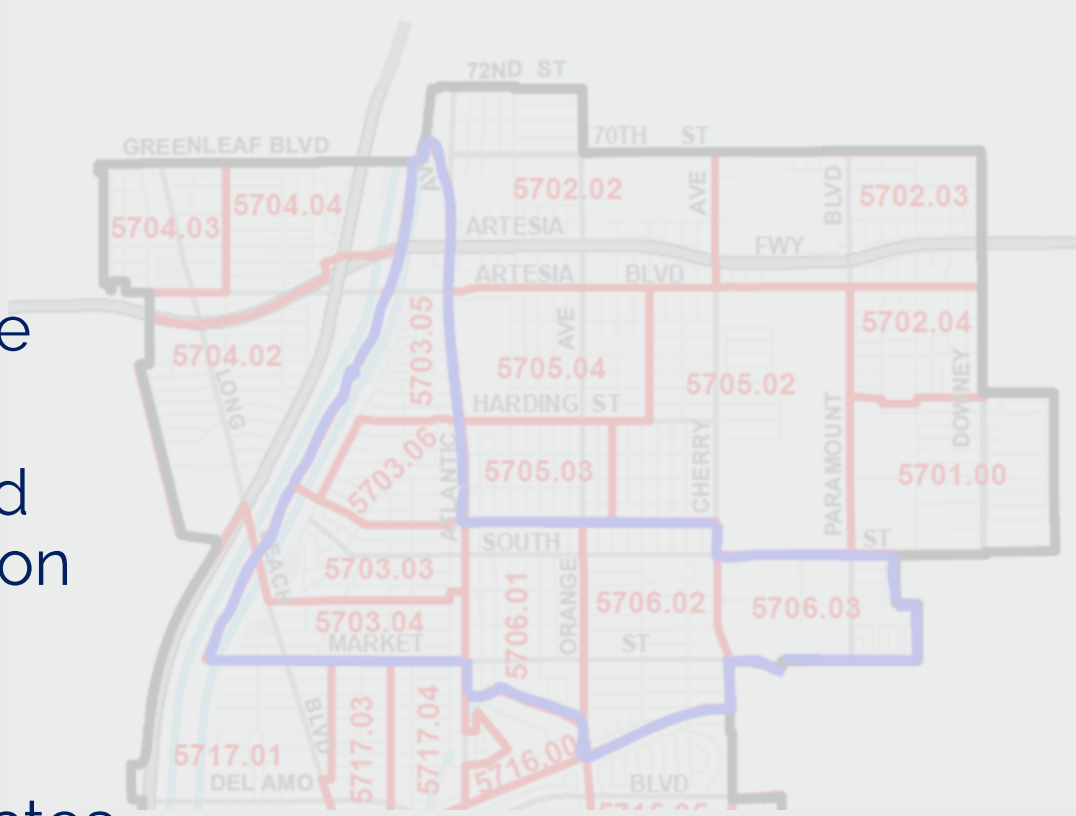
Long Beach Environmental Health Data Capacity Program (LBEHDC Program)

Utilizes Environmental Health data to make more informed decisions in identifying and addressing Environmental Health hazards at public pools and spas in Long Beach.

Baseline Inspection Date	BASELINE COMPL. RATE	Post Interv Inspection Date	POST INTERV COMPLIANCE RATE	Increase / Decrease in Compliance Rate
8/3/2021	88.81%			
3/18/2022	78.31%			
8/19/2021	92.20%	5/23/2023	98.64%	6.44%
8/3/2022	96.95%	5/23/2023	98.64%	1.69%
8/3/2021	93.90%			
3/18/2022	88.47%			
8/17/2021	94.24%	5/17/2023	94.58%	0.34%
8/17/2022	97.29%	5/17/2023	94.58%	-2.71%
9/23/2021	95.93%	6/2/2023	97.29%	1.36%
10/17/2022	95.93%	6/2/2023	97.29%	1.36%
7/8/2021	93.56%			
8/16/2022	98.31%			
7/8/2021	94.24%			
8/16/2022	98.31%			
7/8/2021	96.95%			
8/16/2022	98.31%			
8/17/2021	94.24%	5/17/2023	97.97%	3.73%
8/17/2022	98.98%	5/17/2023	97.97%	-1.01%
9/23/2021	100.00%	6/2/2023	98.31%	-1.69%
10/17/2022	96.95%	6/2/2023	98.31%	[illegible]

LBEHDC Program Methods / Steps

1. Identify a Priority Area
2. Develop a Compliance Rating System
3. Conduct a Baseline Inspection and Calculate Compliance Rates
4. Identify Lower Compliance Pools / Spas and Provide an Educational / Training Intervention
5. Conduct a Post-Intervention Inspection and Calculate Compliance Rates
6. Compare Pre- and Post-Test Compliance Rates
7. Evaluate and Report Results (tbd)



Educational / Training Intervention

10 Pools / Spas Enrolled

- Based on compliance rates, operator willingness to participate, no / minimal plan check issues
- Provide **self-inspection checklist** to pool / spa operator & maintenance staff to use during regular maintenance
- Consultations and advice
- Next routine inspection conducted to determine post-intervention compliance rate

Full pdf version available at:
www.longbeach.gov/health/inspections-and-reporting/inspections/water-quality/public-pool-and-spa-program/

CITY OF LONG BEACH
Department of Health and Human Services
2525 Grand Ave · Long Beach, Ca 90815 · (562)570-4132

Swimming Pool and Spa Self-Inspection Checklist

The following is a list of routine items that are checked during an inspection of a swimming pool or spa facility. It is intended to help ensure pool safety. **NOTE**: This document does not list all pool and spa regulations and does not exempt operators or owners from regulatory responsibility.

1. Water Chemistry

- ☐ POOL: Free chlorine residual must be maintained at or above 1.0 ppm. If stabilizers (cyanuric acid) are used, chlorine residual must be maintained at or above 2.0 ppm.
- ☐ SPA: Free chlorine residual must be maintained at or above 3.0 ppm.
- ☐ pH must be between 7.2 – 7.8
- ☐ Cyanuric acid (if used) must not exceed 100 ppm.
- ☐ A chemical test kit capable of measuring free chlorine residuals (DPD type), pH, and stabilizer concentration is required.

2. Safety Equipment

The following safety equipment must be provided and maintained visible and available for use at the public pools at all times:

- ☐ Life ring (minimum 17 inches exterior diameter) with attached 3/16 inch rope long enough to span the maximum width of the pool.
- ☐ Rescue pole with securely attached body hook (minimum 12 foot long pole)

5. Pool Enclosure

- ☐ Pool area enclosed with approved fencing (minimum height of 5 feet) and shall be designed and constructed so that it cannot be climbed by small children. No gaps exceeding 4-inches.
- ☐ Gates and doors must be equipped with self-closing and self-latching devices
- ☐ Pool enclosure must have at least one keyless exit.
- ☐ The gate and door opening hardware (handle) must be 42-44 inches above the deck or walkway.

6. Filtration and Chlorination Systems

- ☐ Filtration and chlorination system must be fully functional and operating while the pool is open.
- ☐ An accurate and functional flow meter must be installed.
- ☐ Pressure and vacuum gauges must be provided for the filter system.
- ☐ Sufficient water flow is required to ensure the minimum turnover times are met

Compliance Rating System

Point Deductions for Violations

- 1-3 Point Deductions for Lower Risk Violations
- 4-6 Point Deductions for Medium Risk Violations
- 7-9 Point Deductions for Higher Risk Violations

Calculate Compliance Rates to Identify Lower, Medium, and Higher Compliance Pools / Spas

Compliance Rating System

POOL / SPA FACILITY INSPECTIONS VIOLATIONS AND POINT DEDUCTIONS	HIGHER RISK (7-9)	MEDIUM RISK (4-6)	LOWER RISK (1-3)
Pool Enclosure			
** Provide / Maintain self-closing gate/door to pool area	8		
Provide / Maintain self latching hardware of gate / door	8		
** Maintain 42"-44" minimum height from finished grade to gate/door handle or latch		4	
** Maintain 5' minimum height - pool enclosure / fence	7		
** Maintain vertical bars of enclosure so that no gap greater than 4" exists	8		
** Maintain bottom of enclosure so that no gap is greater than 4" from grade	8		
Safety Equipment			
** Provide / Maintain 12' minimum length pole with body hook	7		
** Provide / Replace life ring - minimum 17 inch exterior diameter	7		
**Provide/Replace life ring rope-min. 3/16" diameter, length must span pool width	7		
** Maintain safety equipment in an easily accessible area visible to pool users	7		
** Repair / Replace spa emergency shut off switch	7		
** Provide and maintain a first aid kit - accessible to pool users		5	
Pool Chemistry/Sanitation			
**Maintain free chlorine residual: 3.0-10.0 ppm for spas/wading pools/spray grounds	9		
**Maintain free chlorine residual: 2.0-10.0 ppm for pools (1.0 ppm if no stabilizer)	9		
** Maintain pH between 7.2 to 7.8	9		
** Maintain cyanuric acid concentration below 100 ppm		5	
** Maintain pool water in a clean and clear condition at all times	8		
** Remove debris / trash from pool and or pool area		5	
Maintain a daily log of chlorine and pH readings			3

LONG BEACH HEALTH & HUMAN SERVICES

CITY OF LONG BEACH

Compliance Rating System

POOL / SPA FACILITY INSPECTIONS VIOLATIONS AND POINT DEDUCTIONS	HIGHER RISK (7-9)	MEDIUM RISK (4-6)	LOWER RISK (1-3)
Recirculation And Associated Equipment			
** Provide approved main drain cover(s)	8		
** Properly secure main drain cover(s)	8		
** Replace broken / damaged main drain cover(s)	8		
**Pool is not Virigina Graeme Baker Act Compliant	8		
Maintain skimmer and all associated parts in good repair			3
Provide / Repair flow meter			3
** Provide / Repair approved automatic chlorinator		6	
Provide / Repair influent / effluent gauge			3
** Maintain recirculation equipment in operation during pool use hours	9		
** Maintain pump and / or filter in good repair	8		
Direction of flow on all plumbing lines in equipment room			1
Pool Structure			
Clean / Maintain equipment room			1
** Repair pool shell where cracked, pitted, chipped, or stained		5	
Replace deteriorated / missing coping		5	
Replace missing / broken tiles		5	
Provide / Replace depth markers		5	
** Repair / Secure hand rails / ladders		5	
Repair steps / step hole(s)		5	
Repair damaged pool decking		5	
** Provide / Repair pool lighting		5	

Compliance Rating System

POOL / SPA FACILITY INSPECTIONS VIOLATIONS AND POINT DEDUCTIONS	HIGHER RISK (7-9)	MEDIUM RISK (4-6)	LOWER RISK (1-3)
Signage: Provide The Following:			
No diving shallow pool sign			2
Maximum occupancy sign (filled in)			2
No lifeguard on duty sign			2
Diarrhea warning sign			2
Diagrammatic illustration of CPR sign			3
Exit Sign			2
Emergency 9-1-1 sign			2
Spa emergency shut off switch sign		4	
Spa warning sign		4	
Direction of flow on all plumbing lines in equipment room			1
Miscellaneous			
** Do not allow spa pool water temperature to exceed 104° F	7		
Provide hose bib vacuum breaker on all hose bibs			1
Provide at least one keyless means of egress		5	
Eliminate all climbing aids adjacent to pool enclosure		5	
Provide access to pool area and equipment room at all times			3
Other			1
Other			1

Compliance Rate Results

PRIORITY AREA	69 POOLS / SPAS		
INSPECTION YEAR	2021	2022	2023
AVG COMPLIANCE RATE	95.34%	94.88%	94.52%
MIN COMPLIANCE RATE	88.47%	78.31%	74.24%
MAX COMPLIANCE RATE	100.00%	100.00%	100.00%

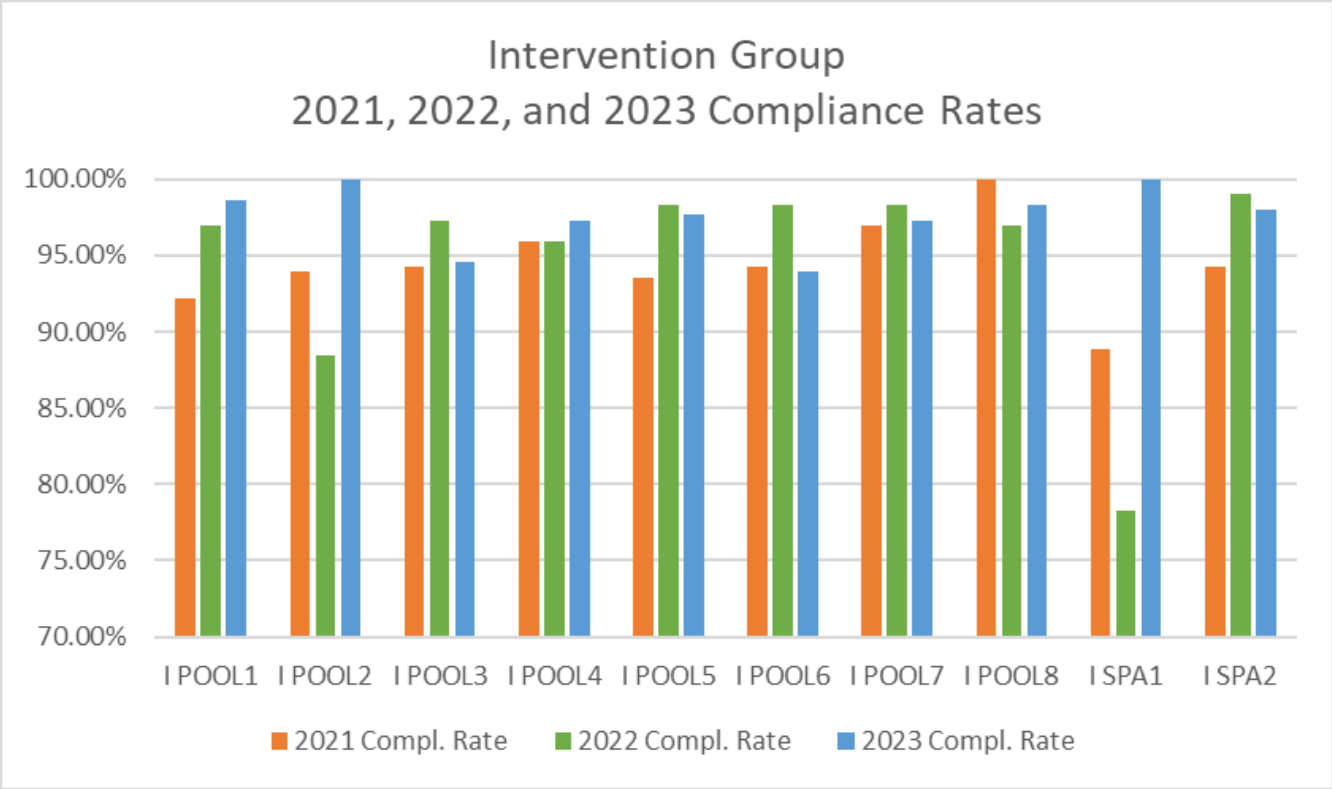
INTERVENTION GROUP	10 POOLS / SPAS		
INSPECTION YEAR	2021	2022	2023
AVG COMPLIANCE RATE	94.41%	96.44%	96.92%
MIN COMPLIANCE RATE	88.81%	78.31%	93.90%
MAX COMPLIANCE RATE	100.00%	98.98%	100.00%

CONTROL GROUP	59 POOLS / SPAS		
INSPECTION YEAR	2021	2022	2023
AVG COMPLIANCE RATE	95.50%	94.90%	94.00%
MIN COMPLIANCE RATE	88.47%	86.10%	74.24%
MAX COMPLIANCE RATE	100.00%	100.00%	100.00%

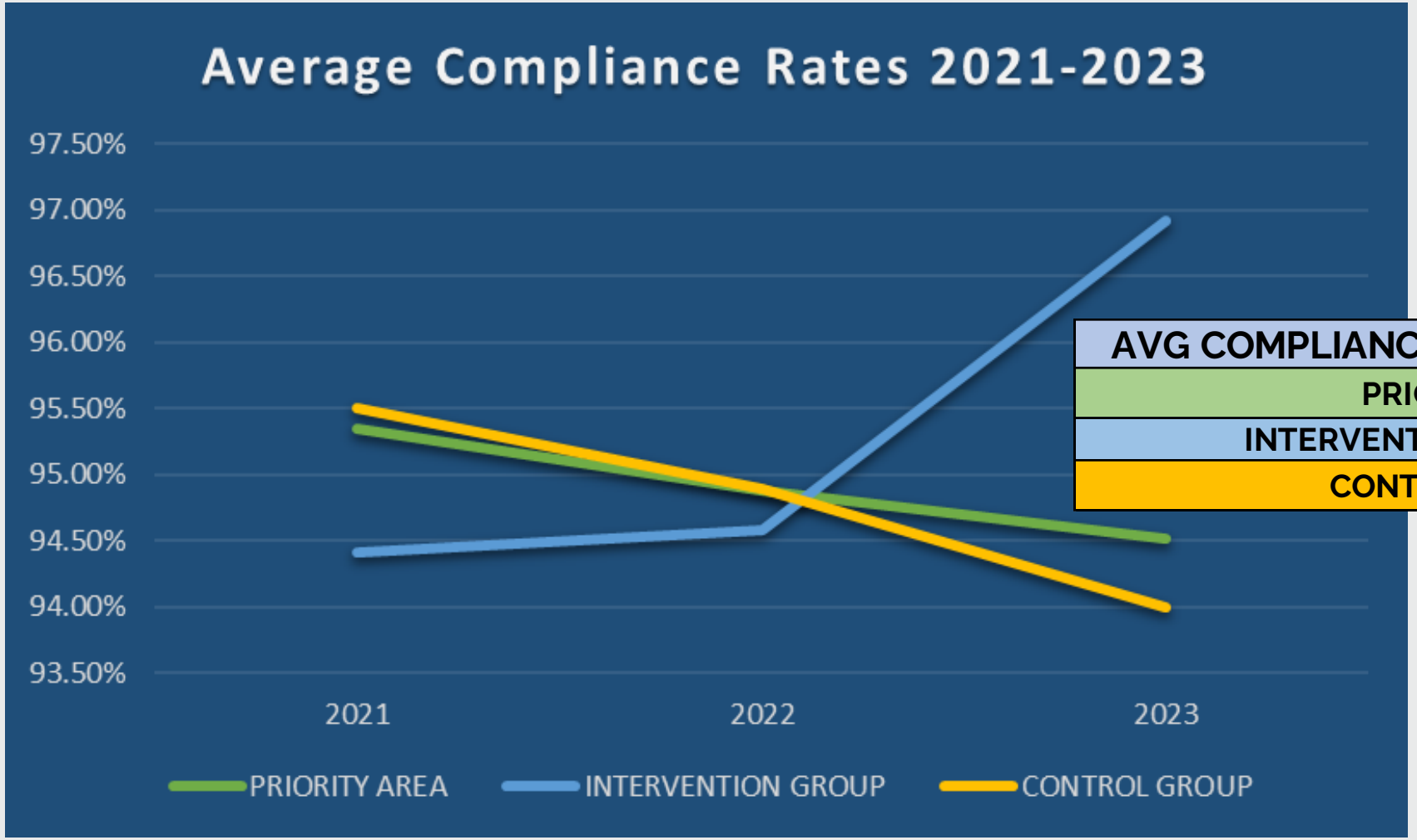
Intervention Group Compliance Rating Data

I POOL1	92.20%	**96.95%**	**98.64%**
I POOL2	93.90%	88.47%	**100.00%**
I POOL3	94.24%	**97.29%**	94.58%
I POOL4	95.93%	95.93%	**97.29%**
I POOL5	93.56%	**98.31%**	97.63%
I POOL6	94.24%	**98.31%**	93.90%
I POOL7	96.95%	**98.31%**	97.29%
I POOL8	100.00%	96.95%	**98.31%**
I SPA1	88.81%	78.31%	**100.00%**
I SPA2	94.24%	**98.98%**	97.97%

Compliance Rate **Increased** / Decreased
from the Prior Inspection Year



Annual Compliance Rates by Group



AVG COMPLIANCE RATES	2021	2022	2023
PRIORITY AREA	95.34%	94.88%	94.52%
INTERVENTION GROUP	94.41%	**94.58%**	**96.92%**
CONTROL GROUP	95.50%	94.90%	94.00%

Compliance Rate **Increased** / Decreased from the Prior Inspection Year

Preliminary Findings: Intervention Group

Intervention Group 2022 to 2023

- Compliance Rates: +2.8%
- Compared to Control Group: +2.9%

The intervention increased compliance rates nearly 3% year to year and versus the control group

Intervention Group Range / Standard Deviation

- 2021: 88.8% - 100% / 2.9%
- 2022: 78.3% - 99% / 6.5%
- 2023: 93.9% - 100% / 2.0%

The range of compliance rates tightened in 2023, also shown by the decrease in standard deviation

Use of the self-inspection checklist by pool operators and maintenance staff resulted in increased and higher compliance rates overall. However, 5 of 10 pools had a minor decrease in compliance rates from 2022 to 2023.

Preliminary Findings: Control Group

Control Group 2022 to 2023

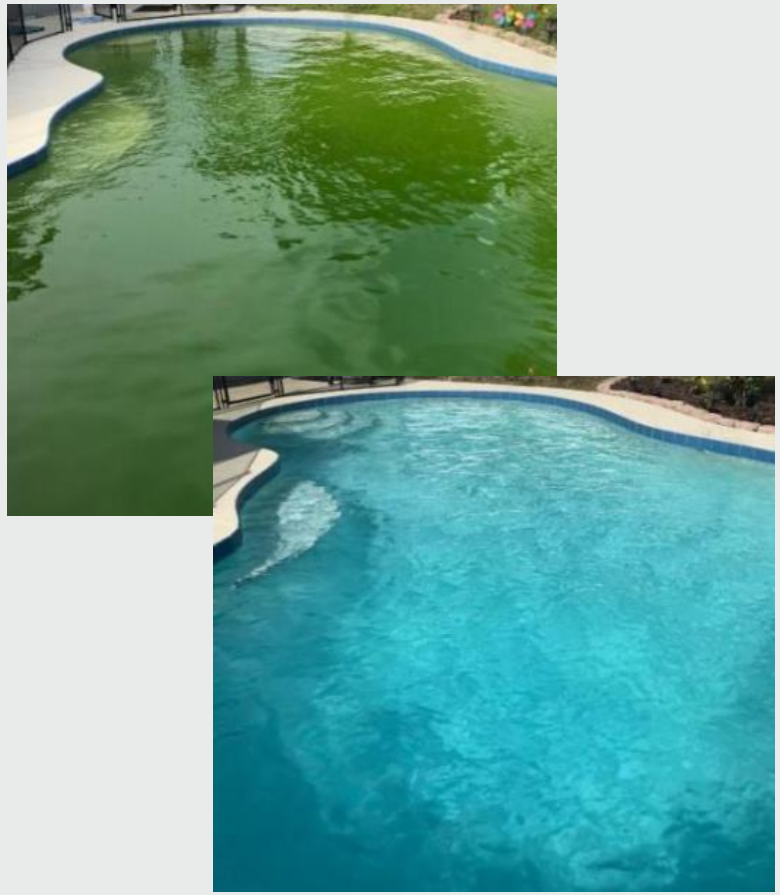
- Compliance Rates: -0.6%
- Compared to Intervention Group: -2.9%

Year to year compliance rates were more constant and noticeably less than the intervention group

Control Group Range / Standard Deviation

- 2021: 88.5% - 100% / 2.9%
- 2022: 86.1% - 100% / 3.7%
- 2023: 74.24% - 100% / 5.0%

The range of compliance rates widened in 2023, and the deviation from the mean increased. The lack of an intervention resulted in slightly lower compliance rates. 29 of 59 pools / spas compliance rates decreased.



Violation Citations by Pool Violation Category

Inspections from 2016 - 2023

Citywide, All Pools and Spas	
Pool Violation Category	**# Cited**
Pool Chemistry / Sanitation	23.53%
Signage	20.59%
Recirculation and Assoc. Equip.	17.37%
Pool Structure	16.21%
Miscellaneous	8.84%
Safety Equipment	8.69%
Pool Enclosure	4.78%

Priority Area Pools and Spas	
Pool Violation Category	**% Cited**
Recirculation and Assoc. Equip.	21.65%
Pool Chemistry / Sanitation	21.33%
Signage	19.14%
Pool Structure	14.95%
Safety Equipment	12.37%
Pool Enclosure	5.86%
Miscellaneous	4.70%

Most Frequent Violations Cited

Inspections from 2016 - 2023

Citywide, All Pools and Spas	
Most Cited Pool Violations	% Cited
Provide / Repair flow meter	8.76%
Maximum occupancy sign (filled in)	7.56%
Provide access to pool area and equipment room at all times	5.83%
** Remove debris / trash from pool and or pool area	5.82%
** Repair pool shell where cracked, pitted, chipped, or	4.09%
Maintain skimmer and all associated parts in good repair	3.84%
** Repair / Secure hand rails / ladders	3.80%
** Provide/Replace life ring rope-min. 3/16" diameter, length must span pool width	3.65%
** Maintain cyanuric acid concentration below 100 ppm	3.64%
** Maintain free chlorine residual of 3.0-10.0 ppm for spas, wading pools, spray grounds	3.63%
***May Cause Closure of the Pool or Spa*	

Priority Area Pools and Spas	
Most Cited Pool Violations	% Cited
Provide / Repair flow meter	10.89%
Maximum occupancy sign (filled in)	8.51%
** Remove debris / trash from pool and or pool area	6.64%
Maintain skimmer and all associated parts in good repair	4.96%
** Repair pool shell where cracked, pitted, chipped, or stained	4.64%
** Repair / Secure hand rails / ladders	4.25%
**Provide / Replace life ring rope - min. 3/16" diameter, length must span width of pool	3.93%
** Maintain free chlorine residual of 3.0-10.0 ppm for spas, wading pools, spray grounds	3.87%
***May Cause Closure of the Pool or Spa*	

Compliance Rate and Violation Data: Potential Uses

- **Assess Pre- and Post- Intervention Compliance Rates to Determine Effectiveness**
- **Compare Year to Year Compliance Rates and Violations Cited**
  - Identify a Minimum Compliance Rate that Results in an Intervention
  - Identify Frequently Cited, Higher-Risk Violations for Strategic Focus
- **Examine Trends Based on Location, Ownership Type, Other Factors**
  - Increased Data Points can Identify Trends Based on Pool/Spa Characteristics
  - Determine Important Characteristics to Monitor and Address

Successes, Challenges, Lessons Learned

Challenges

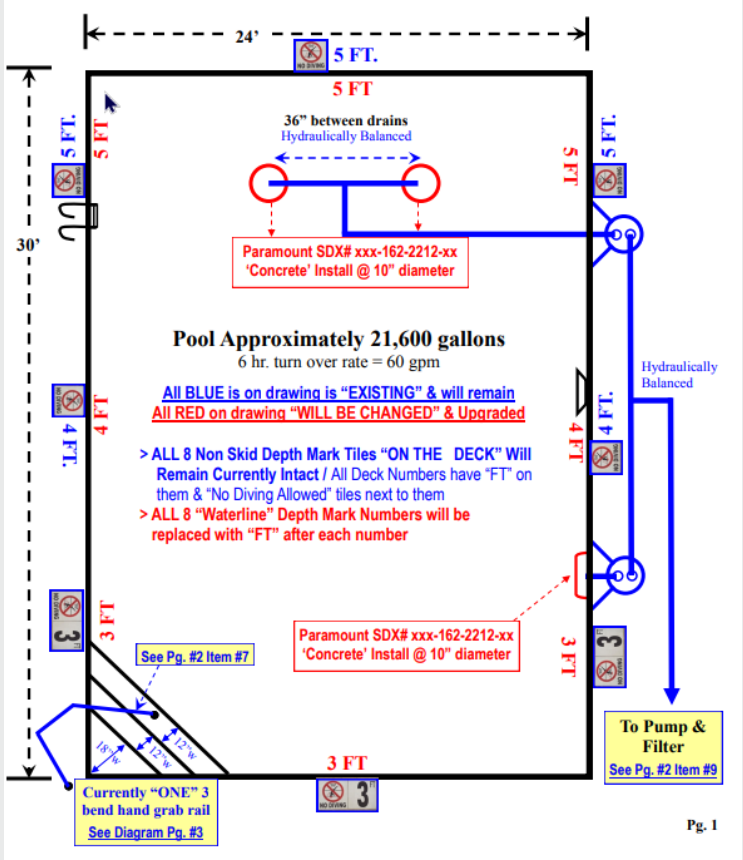
- Voluntary recruitment for the intervention
- Plan check delays and timing issues
- Changes in pool maintenance providers

Successes

- Persistent communication eased operator hesitancy and built rapport
- Operator and maintenance providers knowledge was enhanced
- Data system capabilities were enhanced for data evaluation activities

Lessons Learned

- Persistent communication fostered partnership with operators
- If data system is stretched to its limits, consider a new data system
- Partnerships can enhance objectives and data points



Suggestions for Implementing Similar Programs

Partnerships and Collaboration

- Explore Partnerships that Enhance Efforts
  - Partnering with the Fire Department for response to drowning/near-drowning incidents
  - Approached pool operators as partners
- Utilize Partner Experience and Perspective
  - CDC advice on the evaluation design, intervention enrollment, and other activities
  - Technology and Innovation Department assisting with the selection of a new data system

Questions or Comments?

Thank you

Juan Garcia: Juan.Garcia@longbeach.gov

Robert Campbell: Robert.Campbell@longbeach.gov

City of Long Beach Environmental Health Bureau website
https://www.longbeach.gov/eh/waterquality

Questions?

Use the Q&A box to submit your questions for the panelists!

Thank you for attending today's webinar!
You will receive a follow-up email with the webinar recording and slides.

For more information visit www.naccho.org/mahc

NACCHO
National Association of County & City Health Officials