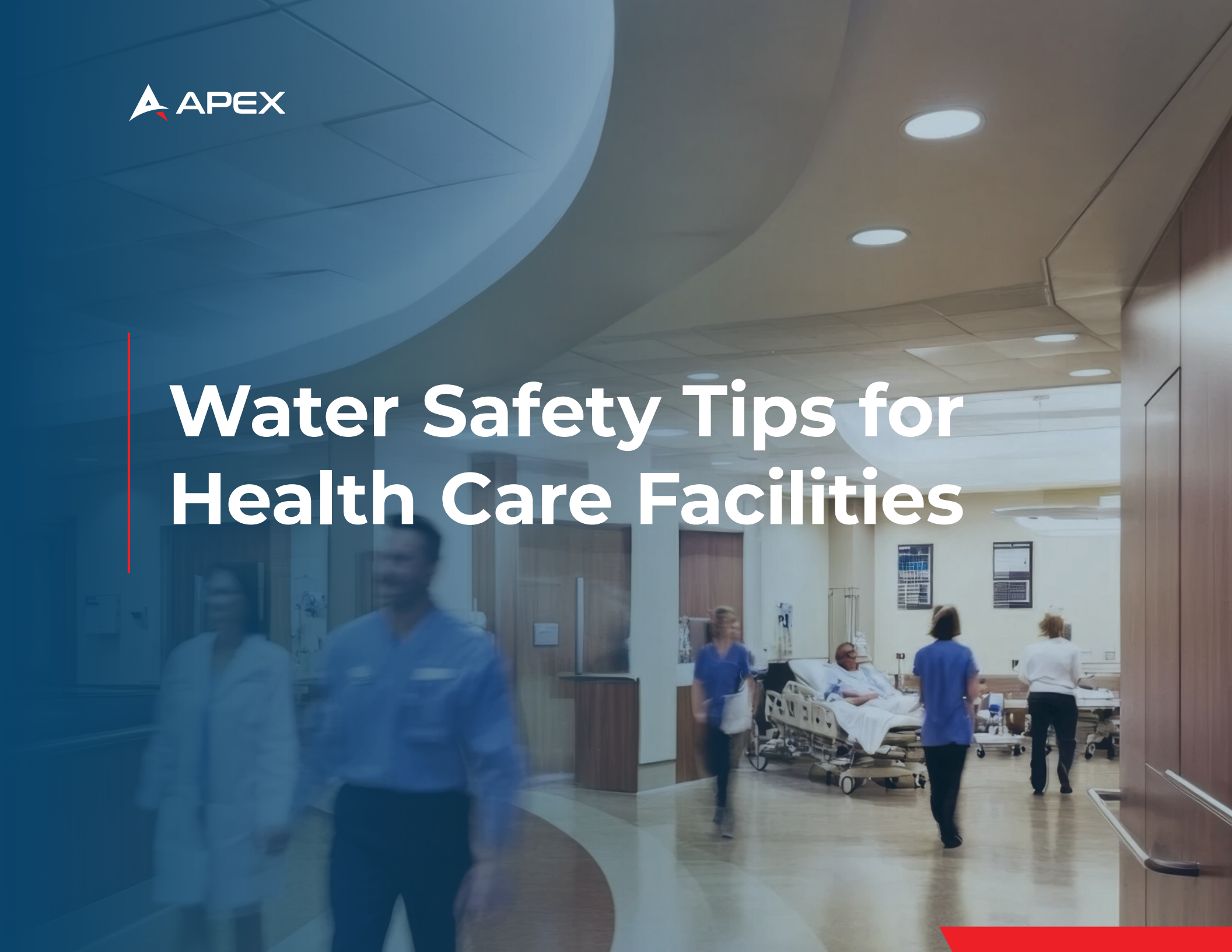
APEX

# Water Safety Tips for Health Care Facilities



# Contents

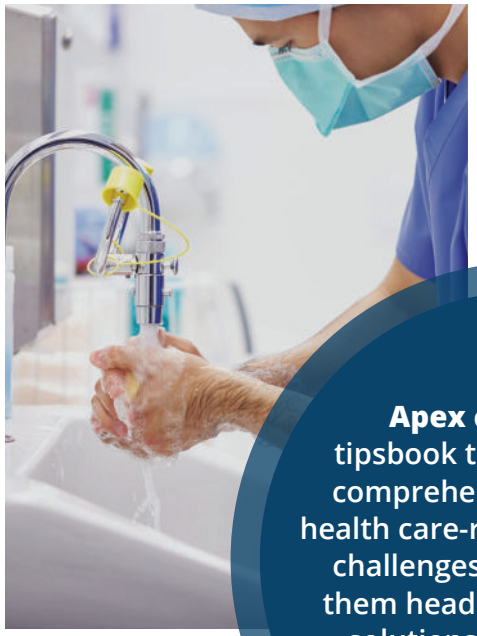
# Why Water Safety Matters

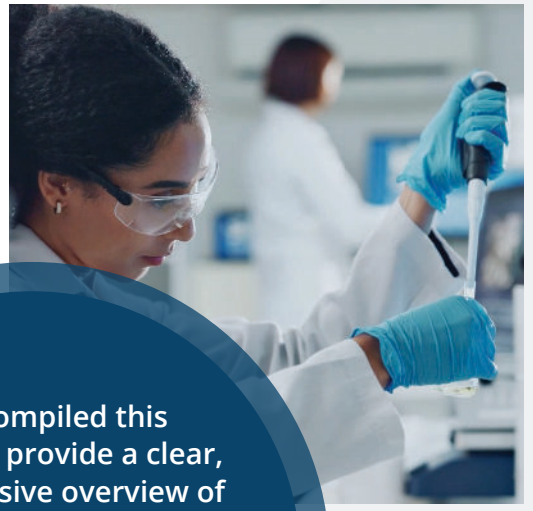
For health care leaders, water safety is no longer a facilities issue—it is a patient safety, compliance and enterprise risk issue. Waterborne events can trigger immediate regulatory scrutiny, disrupt operations, expose organizations to litigation and permanently damage trust. Effective water management protects not only patients and staff, but also revenue streams, accreditation status and organizational reputation.

## In hospitals and health care facilities, water quality is foundational to patient safety.

**Careful management** helps reduce the risk of infections, especially for immunocompromised patients, while also protecting visitors and staff who come into contact with water sources throughout the facility. At the same time, **effective water management** supports compliance with federal, state and local guidelines to ensure your facility meets regulatory requirements and operates with confidence.

**Looking ahead, demand for water safety programs is only expected to grow**, driven by new sterile processing standards, emerging contaminants like PFAS and the increasing commoditization of *Legionella* testing. With compliance audits typically occurring every three years for hospitals and annually for some long-term care facilities, stakes are high. Violations can lead to deficiency notices, loss of funding or, in severe cases, facility shutdowns.





**Apex** compiled this tipsbook to provide a clear, comprehensive overview of health care-related water safety challenges so you can meet them head on with proactive solutions tailored to your facility's unique needs.

# Understanding *Legionella* and Other Waterborne Pathogens

**8,000 to 18,000**
Number of hospitalized cases of Legionnaires' disease occur each year in the U.S.*

**$37,300**
Average cost per hospital stay for Legionnaires' disease*

 *Source: CDC

***Legionella* is bacteria that thrive in warm water environments, especially between 77°F-113°F.** The bacteria become hazardous when they collect in stagnant water systems, especially those with biofilm buildup. When the *Legionella* growth reaches a high enough level, the risk of infection greatly increases. Health care facilities like hospitals and nursing homes are at the highest risk.

Infections occur when individuals inhale contaminated water droplets (aerosols), often from showers, faucets or cooling towers. *Legionella* causes severe, sometimes fatal pneumonia (Legionnaires' disease) and a milder form known as Pontiac fever.

## Risk factors and warning signs

### Risk factors:

- Individuals 50 years or older
- Current or former smokers and heavy alcohol users
- Patients with weakened immune systems, respiratory or chronic illnesses
- Organ transplant recipients
- People breathing in aerosolized mist from contaminated water systems

### Warning signs:

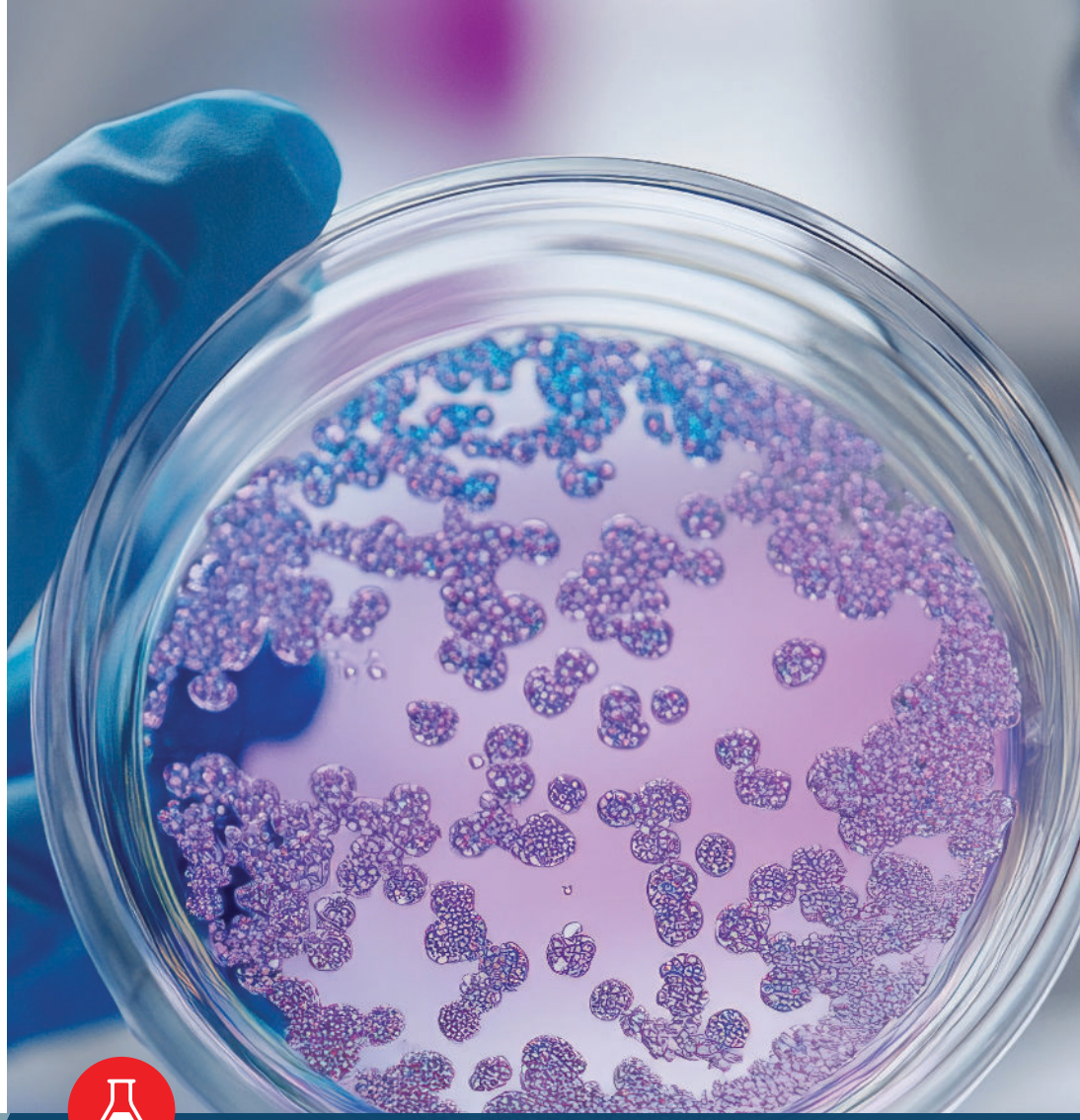
Symptoms typically appear 2 to 10 days after exposure but can take up to 14 days. Early symptoms often resemble the flu:

- High fever, chills, headache
- Persistent cough and shortness of breath
- Muscle aches and fatigue

## UNDERSTANDING *LEGIONELLA* AND OTHER WATERBORNE PATHOGENS

Beyond *Legionella*, an effective water safety program should also manage other opportunistic pathogens found in building water systems, including:

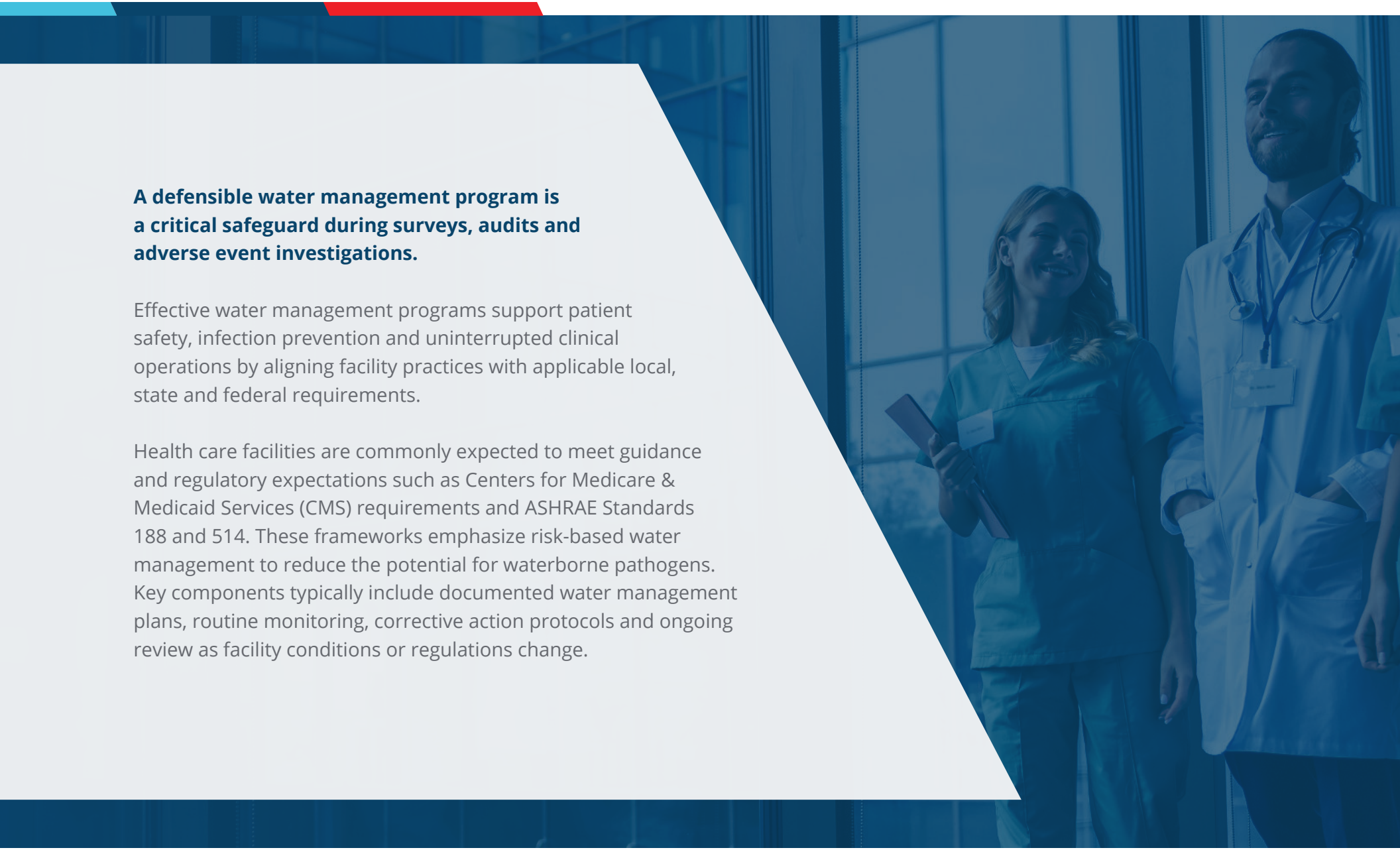
- ***Pseudomonas:*** linked to biofilms, dialysis, tubing, therapy pools
- ***Acinetobacter:*** can live on equipment, causes wound and respiratory infections
- ***Burkholderia:*** associated with contaminated medical products
- ***Stenotrophomonas:*** pathogenic for immunocompromised individuals
- **Nontuberculous mycobacteria:** resistant to chlorination, found in medical devices
- **Fungi:** opportunistic molds like Aspergillus



Waterborne infections often present as **"unexpected" clinical complications**—making root cause identification slower, corrective action more costly and regulatory response more **severe**.

Guarding against a *Legionella* outbreak and other opportunistic pathogens in your water supply requires constant vigilance and reliable testing. With the right combination of awareness, regular upkeep, and technology, you can **mitigate risks and keep your facility safe**.

# Industry Standards and Compliance



**A defensible water management program is a critical safeguard during surveys, audits and adverse event investigations.**

Effective water management programs support patient safety, infection prevention and uninterrupted clinical operations by aligning facility practices with applicable local, state and federal requirements.

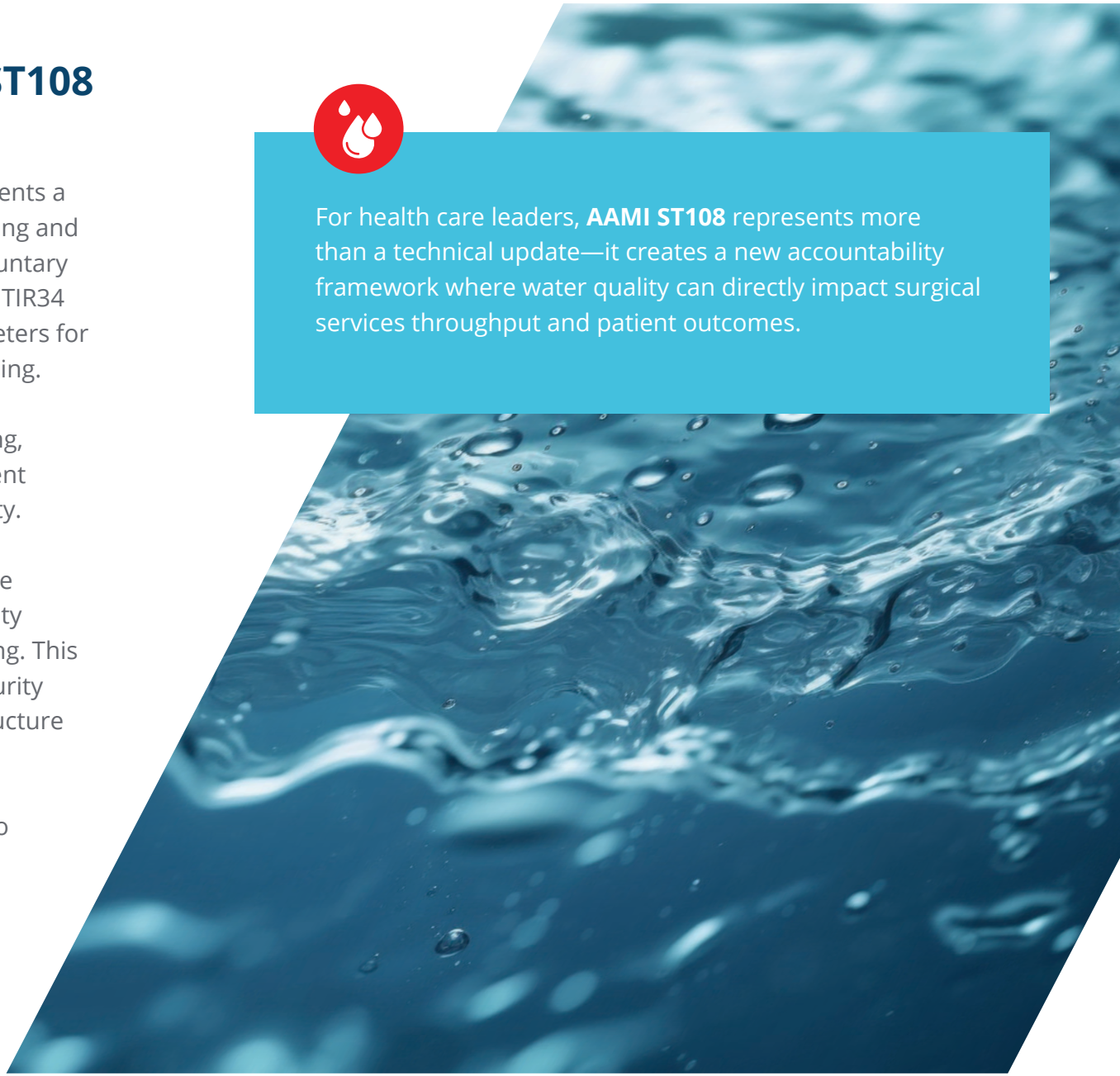
Health care facilities are commonly expected to meet guidance and regulatory expectations such as Centers for Medicare & Medicaid Services (CMS) requirements and ASHRAE Standards 188 and 514. These frameworks emphasize risk-based water management to reduce the potential for waterborne pathogens. Key components typically include documented water management plans, routine monitoring, corrective action protocols and ongoing review as facility conditions or regulations change.

# Emerging focus: AAMI ST108

**AAMI ST108**, established in 2023, represents a significant shift in expectations for cleaning and sterilization processes. Unlike earlier voluntary guidelines, ST108 builds on the previous TIR34 by introducing clear, measurable parameters for improved water quality in sterile processing. The standard places increased emphasis on water quality used in sterile processing, recognizing its direct impact on instrument reprocessing outcomes and patient safety.

As awareness of ST108 grows, health care facilities are reassessing how water quality supports surgical instrument reprocessing. This has led to increased attention on high-purity water systems and how existing infrastructure aligns with the standard. Facilities may evaluate options ranging from point-of-use systems in sterile processing areas to broader system upgrades designed to meet defined water quality parameters.

For health care leaders, **AAMI ST108** represents more than a technical update—it creates a new accountability framework where water quality can directly impact surgical services throughput and patient outcomes.



# Essential water safety practices

**Routine monitoring**
Verify water temperatures, disinfectant residuals and system conditions on a scheduled basis, with added attention during low-use and recovery periods.

**Temperature control**
Maintain hot water generation at ≥140°F and routinely document temperatures to limit *Legionella* growth.

**Consistent disinfection**
Maintain effective levels of approved disinfectants—such as chlorine, chlorine dioxide or chloramine—throughout the system.

**Biofilm, scale and corrosion control**
Manage biofilm, scale and corrosion to protect infrastructure and support disinfection effectiveness.

**Corrective action documentation**
Document investigations, corrective actions and follow-up verification when results fall outside control limits.

# Water Management Programs (WMPS)

**Water Management Programs (WMPs)** are a foundational element of safe and reliable health care facility operations. A well-structured WMP provides a systematic approach to identifying water system risks, implementing preventive controls and responding effectively when conditions change. These programs help reduce the risk of waterborne pathogens while supporting regulatory compliance and operational continuity.

## Effective WMPs begin with a comprehensive evaluation of building water systems to identify are as prone to stagnation, temperature loss, disinfectant decay or biofilm formation.

Programs are designed to address the full lifecycle of water safety—from routine prevention to corrective action and remediation following system disruptions or abnormal test results. Typical components include water treatment strategies, equipment cleaning and disinfection protocols, and filtration where appropriate.

To remain defensible and survey ready, WMPs should align with **Centers for Medicare & Medicaid Services (CMS) QSO-17-30, ASHRAE Standard 188 (2021)** and applicable state and local regulations. Routine microbiological and chemical testing is used to verify program effectiveness, commonly targeting *Legionella*, *Pseudomonas aeruginosa*, nontuberculous mycobacteria, heterotrophic plate count (HPC), coliforms and other organisms relevant to health care environments.

**Health care costs of infectious waterborne disease in the United States**

**3.3B**

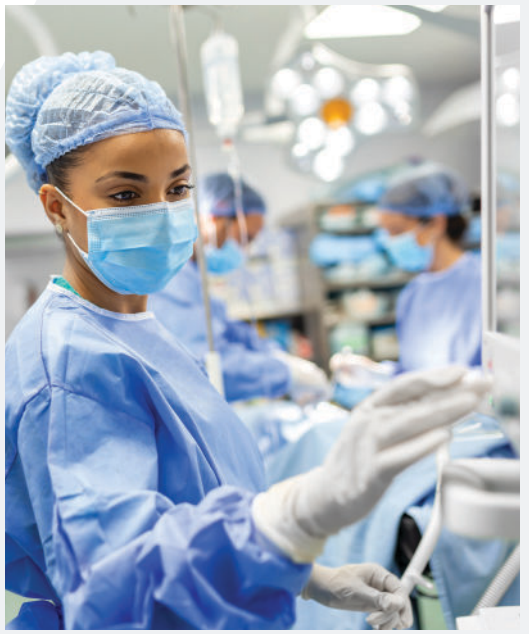
Annual direct health care costs*

**7.5M**

Annual illnesses*

**37K**

Average cost per Legionnaires hospital stay*



*Source: CDC

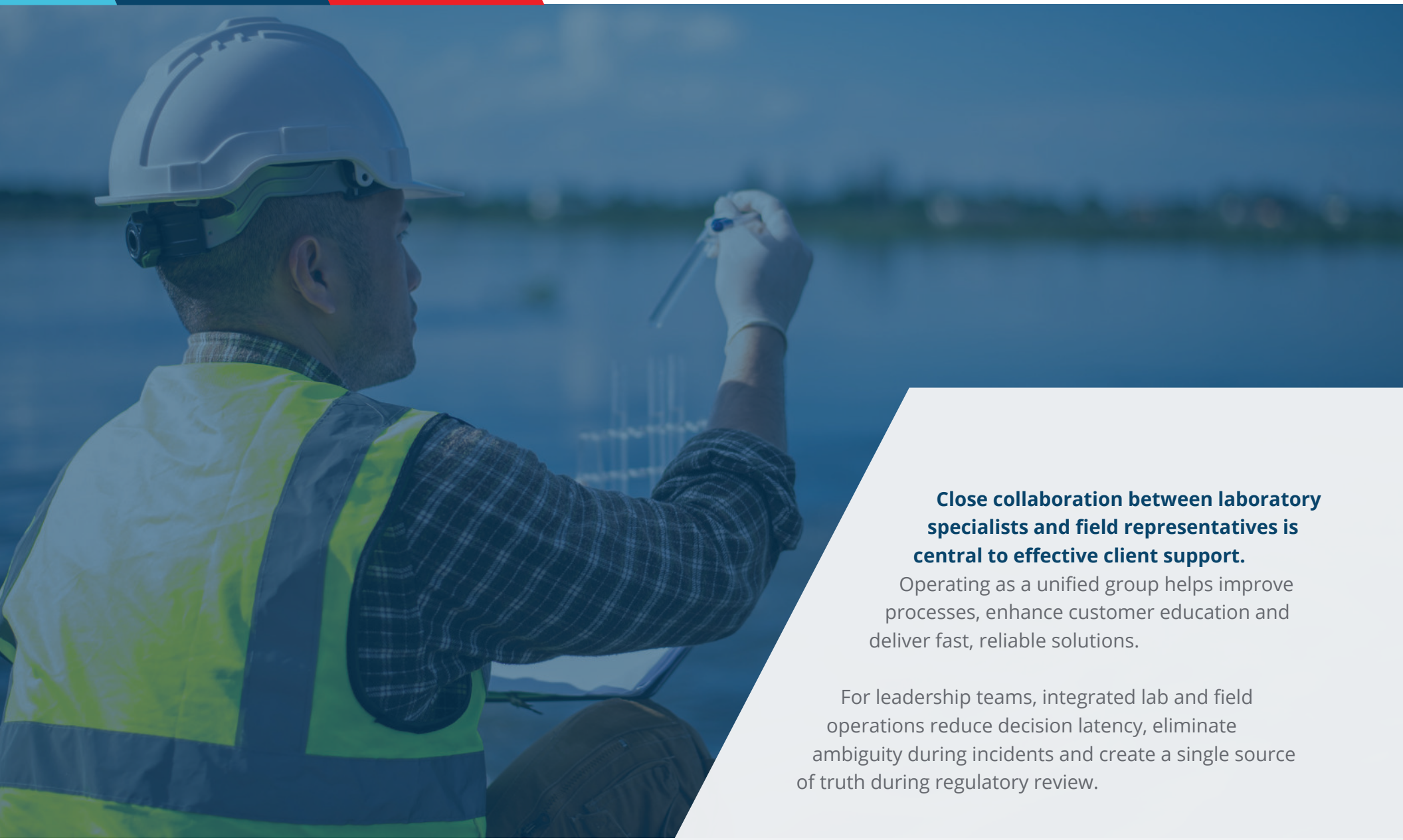
# How to build an effective WMP

1. **Form a multidisciplinary water management team** that includes clinical, facilities, infection prevention and risk management representatives.
2. **Clearly define the scope** of the program by mapping all potable and non-potable water systems, such as cooling towers, showers, ice machines and decorative water features.
3. **Identify high-risk** areas where scale, biofilm or stagnant water (dead legs) may occur.
4. **Establish written policies** that define goals, roles, responsibilities and maintenance procedures.
5. **Plan for external water-related events,** including water main breaks, construction impacts and boil water advisories.

**Consider this**

In many organizations, the **Water Management Program** functions as a **critical control** within the broader enterprise risk and infection prevention framework—similar to life safety, environment of care and emergency preparedness programs.

# Collaboration Between Lab and Field



**Close collaboration between laboratory specialists and field representatives is central to effective client support.**

Operating as a unified group helps improve processes, enhance customer education and deliver fast, reliable solutions.

For leadership teams, integrated lab and field operations reduce decision latency, eliminate ambiguity during incidents and create a single source of truth during regulatory review.

## Effective water management hinges on coordinated action, clear insight and consistent compliance.

The following best practices help health care facilities build stronger, more resilient programs.

### TIP 1

#### TREAT LAB–FIELD INTEGRATION AS A GOVERNANCE FUNCTION

Effective water management depends on laboratory and field teams operating as a single, accountable system. This alignment enables faster insight, clearer ownership and defensible decision-making, supporting **CMS risk-based water management** expectations and **ASHRAE 188** requirements for ongoing verification, validation and corrective action.

### TIP 2

#### USE CONTEXT, NOT JUST DATA, TO DRIVE DECISIONS

Water testing results are only meaningful when interpreted within the context of a facility's infrastructure and risk profile. Translating data into actionable guidance aligns with **ASHRAE 188's system-specific risk framework** and supports **AAMI ST108**, which emphasizes measurable, context-driven water quality controls—particularly in sterile processing.

### TIP 3

#### BALANCE PATIENT SAFETY AND ASSET PROTECTION THROUGH SPECIALIZED TESTING

Strategic use of both microbiology and chemistry testing supports infection prevention while protecting infrastructure performance. Together, these disciplines help meet **CMS infection prevention expectations** and **ASHRAE 188** requirements to control system conditions that promote pathogen growth.

## Effective water management hinges on coordinated action, clear insight and consistent compliance.

The following best practices help health care facilities build stronger, more resilient programs.

### TIP 4

**EXPAND RISK AWARENESS BEYOND *LEGIONELLA***

While *Legionella* remains a key focus, comprehensive programs address a broader range of organisms, reflecting increased regulatory and clinical attention to waterborne risk. This approach supports **CMS's all-hazards infection prevention model** and reinforces **ASHRAE 188's** requirement to manage all significant water system risks.

### TIP 5

**PRIORITIZE SPEED WITHOUT COMPROMISING COMPLIANCE**

Faster testing methods enable earlier risk identification and response during system disruptions or suspected exposure events. While culture testing remains essential for **CMS** and **ASHRAE 188** compliance, accelerated methods enhance operational resilience and proactive risk management.

**Did you know**

Apex is **1 of 3** companies in North America **with integrated labs and water treatment**, offering end-to-end in-house expertise and personalized customer support.

A2LA ACCREDITED
Certificate # 4945.01

bsi ISO 9001 Quality Management Systems CERTIFIED

Certificate of Analysis NYS DOH ELAP Lab # 12098
ISDH Certificate No.M-29-03

CDC's ELITE Program

# Frequently Asked Questions

## 1. How do health care facilities prevent *Legionella* growth in water systems?

Prevention requires a proactive, documented Water Management Program (WMP) focused on high-risk systems such as potable water, cooling towers and sterile processing. Effective programs combine routine monitoring, temperature control, consistent disinfection and defined corrective actions to reduce risk and maintain regulatory defensibility.

## 2. How does a facility create an effective WMP?

An effective WMP begins with a comprehensive risk assessment of all building water systems. Facilities then establish system-specific control measures, testing protocols, maintenance procedures and corrective action thresholds. The program should be formally documented, regularly reviewed and updated as facility conditions or regulations change.

## 3. How can leadership determine whether an existing WMP is properly implemented?

Proper implementation is demonstrated through consistent monitoring results, complete documentation, adherence to maintenance schedules and clear evidence of corrective actions when control limits are exceeded. Programs should be survey-ready and aligned with recognized standards such as CMS guidance and ASHRAE 188.

# Frequently Asked Questions

## 4. What additional water and process controls should facilities consider to protect patients, visitors and staff?

Beyond *Legionella*, comprehensive water safety programs address other opportunistic waterborne pathogens that pose risk to vulnerable populations and complex health care systems. These include *Pseudomonas, Acinetobacter, Burkholderia, Stenotrophomonas* and nontuberculous mycobacteria (NTM). Apex helps facilities mitigate these risks through advanced testing, continuous monitoring and targeted treatment strategies.

## 5. Does a WMP require *Legionella* testing?

While requirements vary by jurisdiction, *Legionella* testing is widely recognized as a best practice for validating WMP effectiveness. Testing supports risk-based decision-making and provides defensible documentation during surveys or investigations. Facilities should confirm requirements with their Authority Having Jurisdiction (AHJ).

## 6. What waterborne pathogens, other than *Legionella*, should health care facilities monitor?

Monitoring strategies should follow industry standards and be tailored to specific facility areas and historical risk factors. Facilities with prior pathogen findings or high-risk patient populations may expand testing to include additional organisms as part of a defensible, risk-based approach.

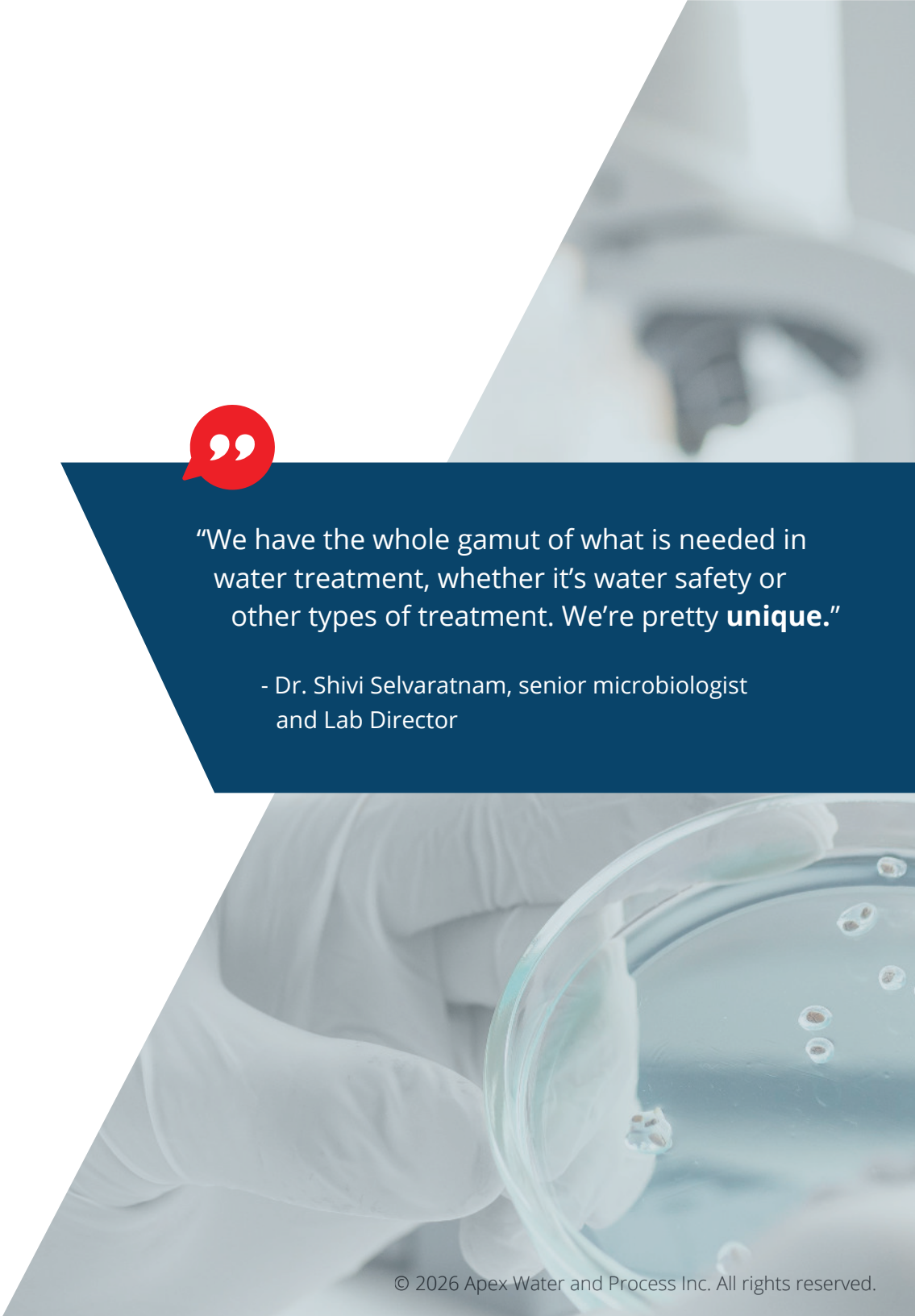
# How Apex Can Help

The Apex approach is designed to help leadership teams reduce waterborne risk, maintain continuous survey readiness, protect critical infrastructure and demonstrate due diligence— without adding unnecessary burden to internal staff.

## Apex supports health care water safety through a combination of technical expertise, data-driven insight and consistent, hands-on engagement.

Our focus is on **clear communication, practical guidance and reliable execution** — helping facilities to understand regulatory requirements and translate them into effective, real-world water management practices.

By analyzing water quality data over time, Apex helps facilities identify trends, detect anomalies early and address potential risks before they escalate. Long-term partnerships enable year-over-year benchmarking, more targeted interventions and continuous improvement of water management programs. Protecting patients and other vulnerable populations remains central to all efforts.



> "We have the whole gamut of what is needed in water treatment, whether it's water safety or other types of treatment. We're pretty **unique.**"
>
> - Dr. Shivi Selvaratnam, senior microbiologist and Lab Director

# Apex services and solutions

**Water management programs (WMPs)** aligned with CMS QSO-17-30, ASHRAE Standard 188, AAMI ST108 and applicable state and local requirements

**Facility risk assessments** to identify system vulnerabilities and high-risk conditions

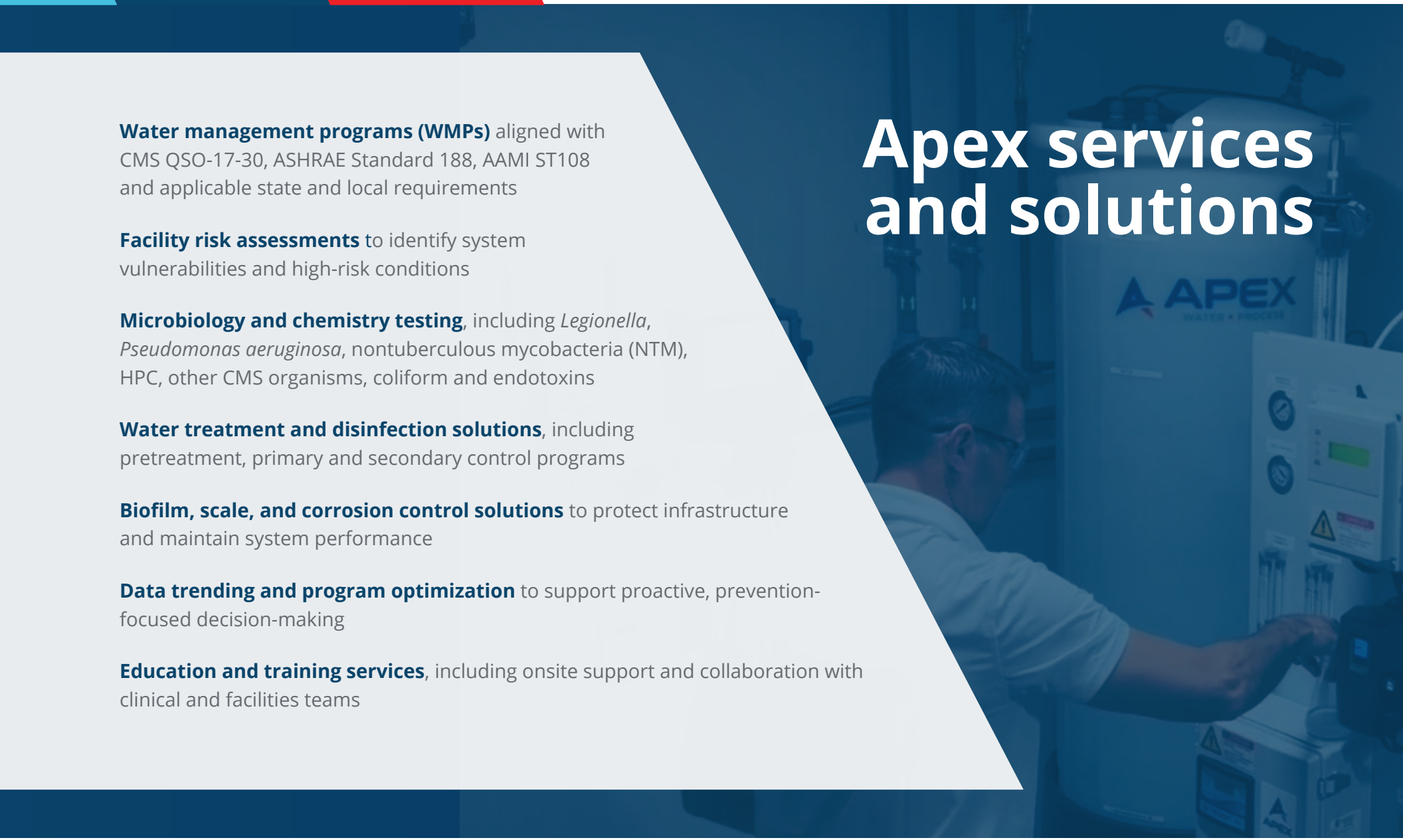
**Microbiology and chemistry testing**, including *Legionella*, *Pseudomonas aeruginosa*, nontuberculous mycobacteria (NTM), HPC, other CMS organisms, coliform and endotoxins

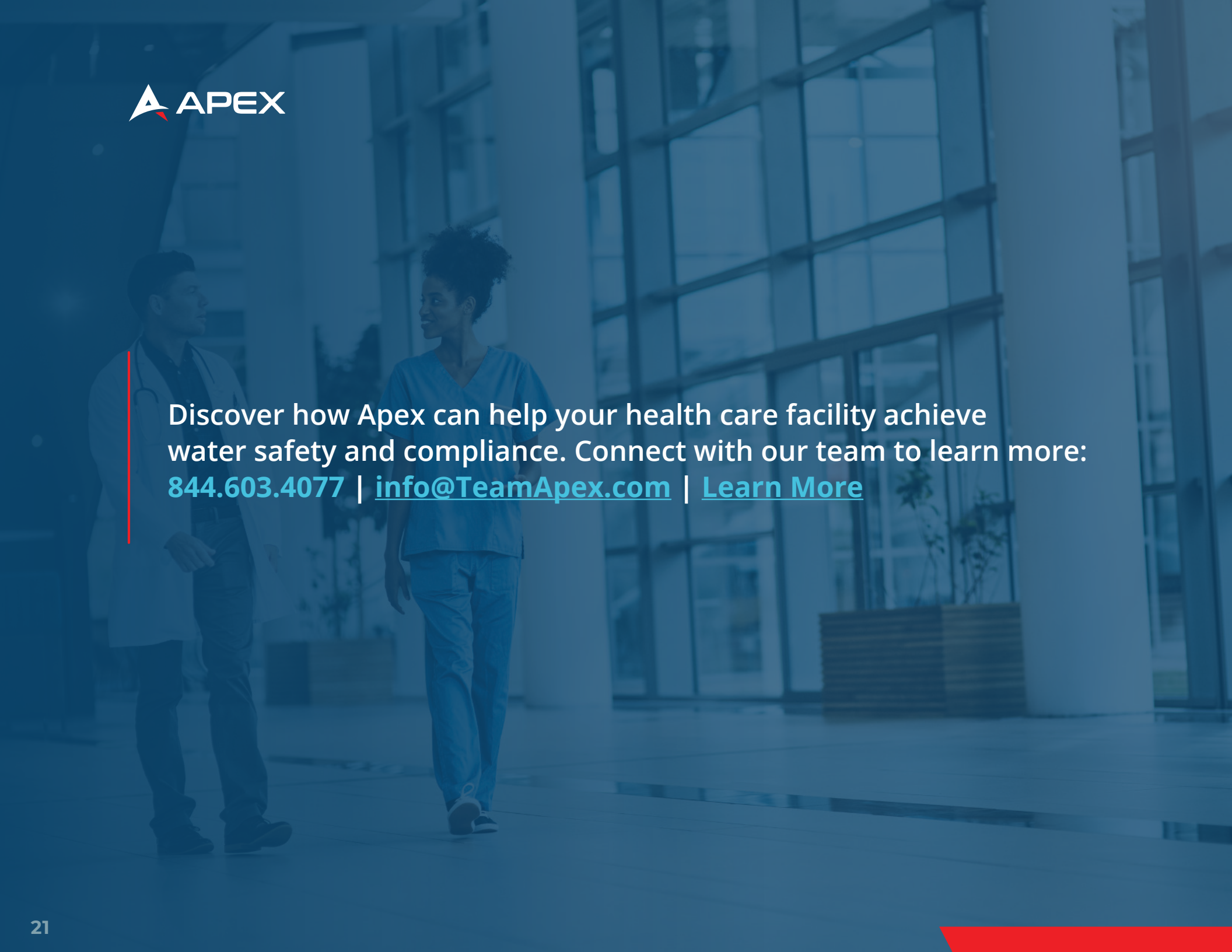
**Water treatment and disinfection solutions**, including pretreatment, primary and secondary control programs

**Biofilm, scale, and corrosion control solutions** to protect infrastructure and maintain system performance

**Data trending and program optimization** to support proactive, prevention-focused decision-making

**Education and training services**, including onsite support and collaboration with clinical and facilities teams





Discover how Apex can help your health care facility achieve water safety and compliance. Connect with our team to learn more:
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