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HC Info

(1) What existing standards or guidance does your organization use for the prevention of Legionella growth and transmission?

The recommendations we provide via e-Learning courses, water management plans (WMPs), and consulting are based on scientific studies, our own data from consulting projects, issues in litigation related to Legionnaires' disease, and a review of virtually every Legionella guideline issued in the US and several other countries. Our WMPs are based on the framework outlined in ASHRAE 188.

(2) Are there other standards or guidance for the prevention of Legionella growth and transmission that you would find useful but do not exist or are not currently available to you? If so, what information should those standards or guidance contain?

We attempt to stay abreast of new technologies and research findings regarding Legionella prevention but do not need another guideline or standard.

As for hospitals and other facilities that should have WMPs, some complain that ASHRAE 188 provides only a framework, without details. However, based on 20+ years observing facility personnel with respect to Legionella prevention, I suspect many of these facilities are not actually looking for prescriptive guidance but rather an excuse to delay setting up a WMP. Facilities that are willing to set up a comprehensive WMP have available to them the information and resources to do so.

Therefore, what may be needed are regulations rather than another standard or guideline.

(3) What is your organization's role, and your role within the organization, in achieving implementation of WMPs by owners and managers of buildings at increased risk for Legionella growth and transmission?

We provide a cloud application (LAMPS) for water management plans, analytics, and training. The purpose of LAMPS is to make it easy and inexpensive to set up, implement, document, and measure a comprehensive, defensible WMP.

My personal role is to educate (e.g., via webinars and online courses), to provide technical assistance to the users (service providers as well as facilities) of our software, and to update and upgrade the content and functions of LAMPS.

(4) In your organization's experience, what are the principal barriers to implementation of WMPs by building owners and managers?

a. For facilities willing to implement WMPs out of genuine concern for the health of the people in their buildings, or to reduce their legal risk, the barrier is lack of awareness and education.

b. For other facilities, the barrier is lack of regulations or insurance requirements. As mentioned in #2, many of these facilities will claim they do not have enough guidance but they are the same ones that for years said they were waiting for a nationally recognized standard and still did nothing after ASHRAE 188

was finalized. They simply will not implement prevention until it's required by a law or to maintain liability insurance.

Sadly, it seems a high percentage (95%?) of facilities fall into category b.

Principle-based rather than prescriptive regulations may be enough to get effective prevention in most facilities (see <http://hcinform.com/blog/following-ashrae-188-limited-time-money-personnel-pressure-building-operators-health-officials/>). The others probably will not fully implement preventive measures, even if required by law.

(5) Where there are barriers, what has your organization done to overcome these barriers?

Except for presenting webinars, writing articles, and speaking at industry events to increase awareness, we do little to persuade facilities to develop WMPs. Our focus is to help facilities that want a good WMP rather than to convert ones that don't.

As stated in #3, we have tried to provide a way (LAMPS) to make it easy and inexpensive for facilities to develop and implement a WMP and for service providers (water treatment companies, engineering firms, industrial hygiene firms, consultants) to set up WMPs for their facility customers.

(6) Where implementation of WMPs has gone smoothly, what factors (e.g., resources, guidance, activities) contributed to this success?

I've observed that facilities with basically the same WMP policies and procedures can have quite different outcomes depending on how well they execute their WMP. Three factors stand out as important for success (see <http://hcinform.com/blog/complying-new-legionella-standards/> for details):

(1) Set-up and implementation services. If a WMP is comprehensive and detailed, facility personnel will typically feel overwhelmed when they first receive it. We encourage WMP service providers to spend one-half to a full day with the facility customer after delivering a WMP, to help them get started with scheduling and documenting procedures. Even just explaining control measures is hugely beneficial for "buy-in." Quarterly meetings to ensure ongoing implementation, documentation, and verification are also beneficial.

(2) Built-in training. We have received very positive feedback on training that is built in to control measures. After clicking a "suggested training" link, the user goes instantly to a brief article or video on the subject. The training is available right when the facility personnel need it. It helps them quickly understand how to perform the procedure and why it's important for reducing risk.

(3) Management talent and diligence. Some facility personnel are simply more talented than others. They are better at setting up implementation, establishing regular communication with applicable departments, and managing construction projects.

(7) Has your organization had experience with approaches to WMP implementation that are specific to certain settings (e.g., hotels, hospitals) or devices (e.g., cooling towers, potable water)? If so, have you learned anything from these different approaches that could be used to improve WMP implementation? Have you looked for or experienced any unintended consequences related to a WMP?

We separate WMP validation procedures and control measures based on seven property types. This is because of the differences in the susceptibility of the occupants, the operation of the facilities (e.g., typical hours and days plumbing fixtures are used), access to various parts of the building by the maintenance personnel, whether there is usually a full time building engineer on site, and typical water system components and configurations.

Even within a given property type, some control measures need to be customized for a facility based on their personnel and building specifics.

(8) A limited number of jurisdictions have implemented regulations to reduce the risk of Legionella growth and transmission (e.g., New York, New York City). In your state or local jurisdiction, should building codes or other types of public health regulation or legislation be used to help prevent Legionnaires' disease? Why or why not?

For years I believed that facilities would develop WMPs after a nationally recognized standard was adopted and supported by key government agencies (particularly the CDC). It appears that has not happened since ASHRAE 188 was finalized and supported by the CDC, so perhaps regulations are needed.

Three options for regulations are:

1. Principle based (similar to the CMS requirement)
2. Prescriptive based on a nationally or globally recognized standard
3. Regulations varying from state to state

In my opinion, #1 would result in effective prevention at the lowest cost to governments and facilities. #2 would be effective if the standard on which the regulations are based is a good one. #3 would be a disaster because of the complexity and cost (for both governments and facilities). See <http://hcinfo.com/blog/following-ashrae-188-limited-time-money-personnel-pressure-building-operators-health-officials/> for a more in-depth discussion of these three options.

(9) Are there other approaches to reducing the risk of Legionnaires' disease that your organization has found to be useful besides implementation of WMPs?

I have observed two other approaches:

- a. No attention to building water systems until Legionnaires' disease is identified.

To my knowledge, this is no longer considered an option by anyone establishing guidelines or making recommendations pertaining to Legionnaires' disease.

- b. A risk assessment approach whereby a facility has a consultant inspect the systems once a year and make recommendations for reducing risk and then tests water for Legionella periodically.

I have not found this approach nearly as effective as WMPs. WMPs get the facility personnel involved in ongoing prevention instead of relying on a consultant to identify and "fix" problems once a year. Testing building water systems for Legionella can be useful in determining what adjustments are needed for the

WMP but is not as effective as a standalone program, without established water management procedures.

(10) What additional considerations are relevant to developing guidance for preventing Legionnaires disease?

EPA regulations specifically for secondary (point of entry) disinfection. As more states require facility operators to apply public drinking water utility regulations to disinfection within their plumbing systems, this will become an even bigger problem. I think this is already the third biggest obstacle to Legionella prevention.

(11) Has your organization implemented specific approaches to reducing the risk of disease due to other opportunistic waterborne pathogens besides Legionella? If so, please explain. Do these approaches conflict in any way with your approaches to reducing the risk of Legionnaires disease?

Our WMPs include measures specifically for pseudomonas and other pathogens besides Legionella, and for protecting against chemical hazards and scalding, but the stated scope of the WMP is to control Legionella. This is in part because Legionella is the best target pathogen for building water system management—it's almost entirely waterborne, it's associated primarily with building water rather than the public water supply, and there are numerous field studies on which to base control measures.

Also, limiting the stated scope of a WMP is important for keeping the WMP simple—which is crucial for successful implementation—and for reducing the facility's legal risk.

There seems to be disagreement about this, as some contend the scope and hazard analysis of a WMP should include not just Legionella, but all pathogens that can be transmitted from water, even if water is not the primary source—as well as physical and chemical hazards. In my opinion, this is a mistake, overcomplicating the WMP unnecessarily.

Measures can and should be included in a WMP for protecting against scalding, properly handling and feeding chemicals, and preventing cross contamination from backflow. But, including physical and chemical hazards in the purpose statement will add significant complexity (and words) to a WMP with no protective benefit. A WMP purpose to control "waterborne pathogens" could imply the facility is responsible for all pathogens, including ones for which there is insufficient data on which to base water system control measures. It could also imply that facilities must test for multiple pathogens to properly validate their program.

I'm not adamant about limiting the scope of WMPs to Legionella but think it's best for the above reasons.