

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Water Science and Technology Board
Board on Life Sciences
Division on Earth and Life Studies

Board on Population Health and Public Health Practice
Health and Medicine Division

Management of Legionella in Water Systems

Statement of Task

The National Academies of Sciences, Engineering, and Medicine will undertake a project on the management of *Legionella* in water systems. *Legionella* is a bacterium found in drinking water distribution systems, premise plumbing, hot tubs, hot water heaters, cooling towers, fountains, and other building water systems. At high enough concentrations and when inhaled, *Legionella* can cause legionellosis, which includes Legionnaires' disease and Pontiac fever. An *ad hoc* committee of the Academies will review the state of science with respect to *Legionella* contamination of water systems and issue a report on the following:

Ecology and Diagnosis: Describe the microbial ecology of water supplies (from the source to the tap and within built systems) as it relates to *Legionella*. What species and strains of *Legionella* are of most concern and can their diagnosis be improved (in terms of increased specificity, simplicity, and speed)?

Transmission via Water Systems: What are the primary sources and routes of human exposure to *Legionella*? What features/characteristics of water systems make them more or less likely to support growth of *Legionella*?

Quantification: Considering surveillance data, case studies of outbreaks, hospital data, other routine testing of water systems, what is known about the concentration of *Legionella* in water systems and the prevalence of legionellosis over the last 20 years? How uncertain are these estimates and what can be done to reduce this uncertainty? How can quantitative risk assessment be improved?

Prevention and Control: What are the most effective strategies for preventing and controlling *Legionella* amplification in water systems? What are the best methods to prevent exposure to *Legionella*, especially in at risk populations? Is there a minimum level of contamination required to cause disease? What are the benefits, risks, gaps in implementation, and barriers to uptake of *Legionella* control programs?

Policy and Training Issues: What policies, regulations, codes, or guidelines affect the incidence, control, quantification, and prevention of legionellosis? How might they be built upon to better protect the public? How can *Legionella* control be best balanced with other water priorities?

Research: For the above issues, what additional information gaps exist and what knowledge must be gathered to fill these gaps?

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