Presentation Type:
Poster Presentation
From Outbreak to Compliance and Beyond: UAB Medicine's Successful Implementation of a Water Safety Program
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Background: Pre-emptive management of the water supply can reduce hospital-onset legionellosis associated with building water systems. In 2014, an outbreak of *Legionella* pneumonia occurred in a 1,150-bed academic medical center (with ~0.557 km² or ~6 million ft² of space) among hematology-oncology patients. A comprehensive water safety and management program was implemented after the outbreak was controlled. We describe our experience implementing this prevention program. **Methods:** After the *Legionella* outbreak was controlled, an air and water safety committee (AWSC) was established and cochaired by the healthcare epidemiologist and the chief facilities officer. The AWSC established protocols for proactive environmental testing and the development of the an infection control risk assessment (ICRA) dedicated to water safety known as the water system construction and renovation risk assessment (WSCRRA).The water system management plan (WSMP) was developed (prior to the publication of ASHRAE 188) to direct the risk assessments and mitigation of any risks throughout the campus. **Results:** The WSMP identifies critical control measures, points, and limits that need to be maintained to control and monitor *Legionella* growth in the water systems. A control point is any step in a process at which biological, chemical, or physical factors can be controlled. The UAB Medicine WSMP includes 7 control points that are monitored on a daily basis. Examples of these control steps include monitoring of the hot water temperatures at the water heaters and distal outlets, managing the levels of mono-chloramines and chlorines in the water system, and managing water system components. To validate the efficacy of the WSMP, >610 water samples are collected from 19 hospital buildings over a year to be tested for *Legionella*. The results of water testing have shown significant decrease in distal site positivity due to managing and controlling these control points. This WSMP also evaluated the efficacy of 2 different methods for disinfecting water systems on campus as a corrective measure to *Legionella* growth. These methods are hyperchlorination and temporary copper silver ionization; based on the culture results of the water samples collected post disinfection, WSMP data show that the copper silver ionization method was more effective than hyperchlorination in controlling *Legionella* growth and decreasing the distal site positivity. **Conclusions:** The WSMP has provided ongoing management of building water systems and proactive actions around construction and renovation projects that involve water systems to prevent healthcare-acquired legionellosis. We strongly recommend other healthcare facilities to implement a similar program to avoid outbreaks.

Presentation Type:
Poster Presentation
Genomic Epidemiology of Carbapenemase-Producing Enterobacterales (CPE) in Toronto, Canada
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Table 1.

Cluster	No. Cases	No. affected units	Days between detection of first and last case	Carbapenemase gene	Organism, Sequence Type	SNP differences between core genomes	No. additional cases that WGS suggests may also be in cluster
A	9*	2	700	7 bla$_{NDM-1}$ 1 bla$_{NDM-16}$	*Klebsiella pneumoniae* ST147 (7), ST340 (1)	0-31**	2
B	3	1	87	bla$_{KPC-2}$	*Klebsiella pneumoniae* ST258	1-2	0
C	2	1	4	bla$_{VIM-1}$	*Pantoea spp.*	8	0
D	4	1	181	3 bla$_{KPC-2}$ 1 bla$_{KPC-34}$	*Klebsiella pneumoniae* ST258	1-3	1
E	2	1	28	bla$_{KPC-3}$	*Enterobacter cloacae* ST97	1	0
F	2	1	119	1 bla$_{KPC-6}$ 1 bla$_{KPC-29}$	*Klebsiella pneumoniae* ST258	4	0

*1 isolate unavailable.
**ST340 isolate >20,000 SNPs away from ST147 isolates. 0-5 SNP differences between all ST147 isolates except one 29-31 SNPs away.