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Copper and Silver Water Treatment

Case Study

The John Radcliffe Hospital, Oxford University Foundation Trust

Controlling Legionella in a UK hospital using copper and silver ionisation

Background:

The John Radcliffe Hospital (JR) is a large tertiary teaching hospital in Oxford, England. It is the main teaching hospital for Oxford University and Oxford Brookes University. As such, it is a well-developed centre of medical research.

Following the success of ProEconomy's Orca copper and silver ionisation system installed at the Churchill Hospital (see separate case study), which is part of the John Radcliffe, a business case was presented by the JR Estates Manager to the trust board to install the Orca system at the other two John Radcliffe buildings (JR 1 and JR2) to help eradicate the Legionella and other water hygiene issues they were facing there.

Installation of the Orca

After the installation and success of John Radcliffe's first Orca system installed at their Churchill building, a new KB2 6 Pod system was installed at JR1 in May 2016.

Following good results experienced at JR1 a KB4 24 Pod system was installed at JR2 in September 2016 to treat the main hospital. Since then, the neonatal intensive care unit, which has its own water supply and which was observing Legionella positives have installed a small KB1 2 Pod unit.

Orca copper and silver ionisation systems now treat the entire hospitals water system.

Sampling

Before the Orca system was activated, pre-commissioning samples were taken from outlets identified as being at risk of Legionella contamination, 50 outlets at JR1 and 100 outlets at JR2.

After activation of the system, samples were taken monthly from outlets that showed risk of Legionella contamination: 22 to 27 outlets per month at JR1 and 48 to 61 per month at JR2.

These samples were analyzed for Legionella by the culture method and for copper and silver by Inductively Coupled Plasma-Optical Emission Spectroscopy/Mass Spectrometry (ICP-OES/MS), by UKAS accredited laboratories (ALControl and ALS Laboratories, UK).

The site additionally used ProEconomy's silver water analysis sampling data to identify low use outlets and flush or remediate where needed.

Results

A total of 495 samples were collected from JR2 and 384 samples from JR1 since commissioning and the Legionella results for JR2, the main hospital, is shown in figure 1 below.

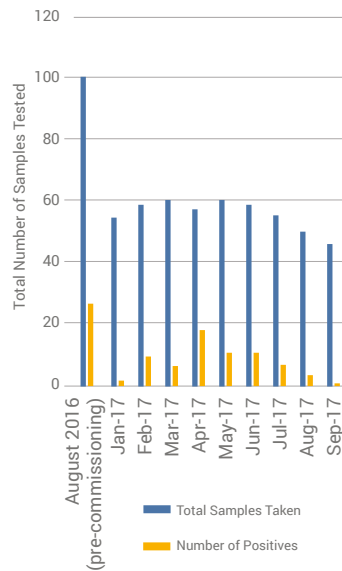


Figure 1 – Total samples, number of Legionella positives and percentage positives, John Radcliffe Hospital main block (Aug 2016 - Sep 2017)

It can be observed that Legionella was a problem at JR2. However, the Orca copper and silver ionisation system has reduced Legionella positives at affected outlets steadily over a year, from the highest level of 24 positive results at pre-commissioning to 2 positive samples in September 2017.

Conclusions

There was enough evidence to show Legionella posed a real threat to the hospital. Legionella control using the Orca system was achieved from January 2017 at JR1 and total Legionella counts have reduced steadily in the past year from 24 to 2 positive samples at JR2.

The system, like any other Legionella control system, must be monitored regularly so that any low-use outlet is quickly detected and flushed regularly.

Customer testimonial:

Claire Hennessey, Head of Operational Estates, has the following to say about the Orca system:

[Since installing the Orca] 'the water samples have gone from a Red sheet to a nice Green sheet. That's all thanks to ProEconomy's copper and silver ionisation system. It works fantastically!'

"It's the first time, after 20-years in estates, I've come across a system that's so effective in managing your water system. It's a blessing!"

Environmental Estates Manager, Phil Mitchell:

"Through the sampling and the low levels of copper and silver identified in certain areas, it was possible to establish which little used outlets were not being flushed. This allowed estates to report to the hospital infection control committee on the areas which were not being flushed."