



ANGEL GUARD



Hospital Trust
Case Study

About Angel Guard

Angel Guard is a water technology company that seeks to save time, money and most importantly lives. They achieve this through the deployment of many innovative, scientific, and technological solutions.

Founded in 2017 by husband-and-wife duo Jonathan and Elaine Waggott, the company was founded on over 30 years of experience in the water industry and much research and consultation of industry experts, from microbiologists to infection control specialists.



The **Situation**

Angel Guard had already been introduced by the water management company to the hospital trust, agreeing on a trial period to allow the trust to experience the benefits of the Clarence system.

The onsite estates team had expressed concerns over potential water quality issues, concluding that remote monitoring may give them a better indication if any environmental factors may be contributing to or creating increased risk to their patients.



The Solution

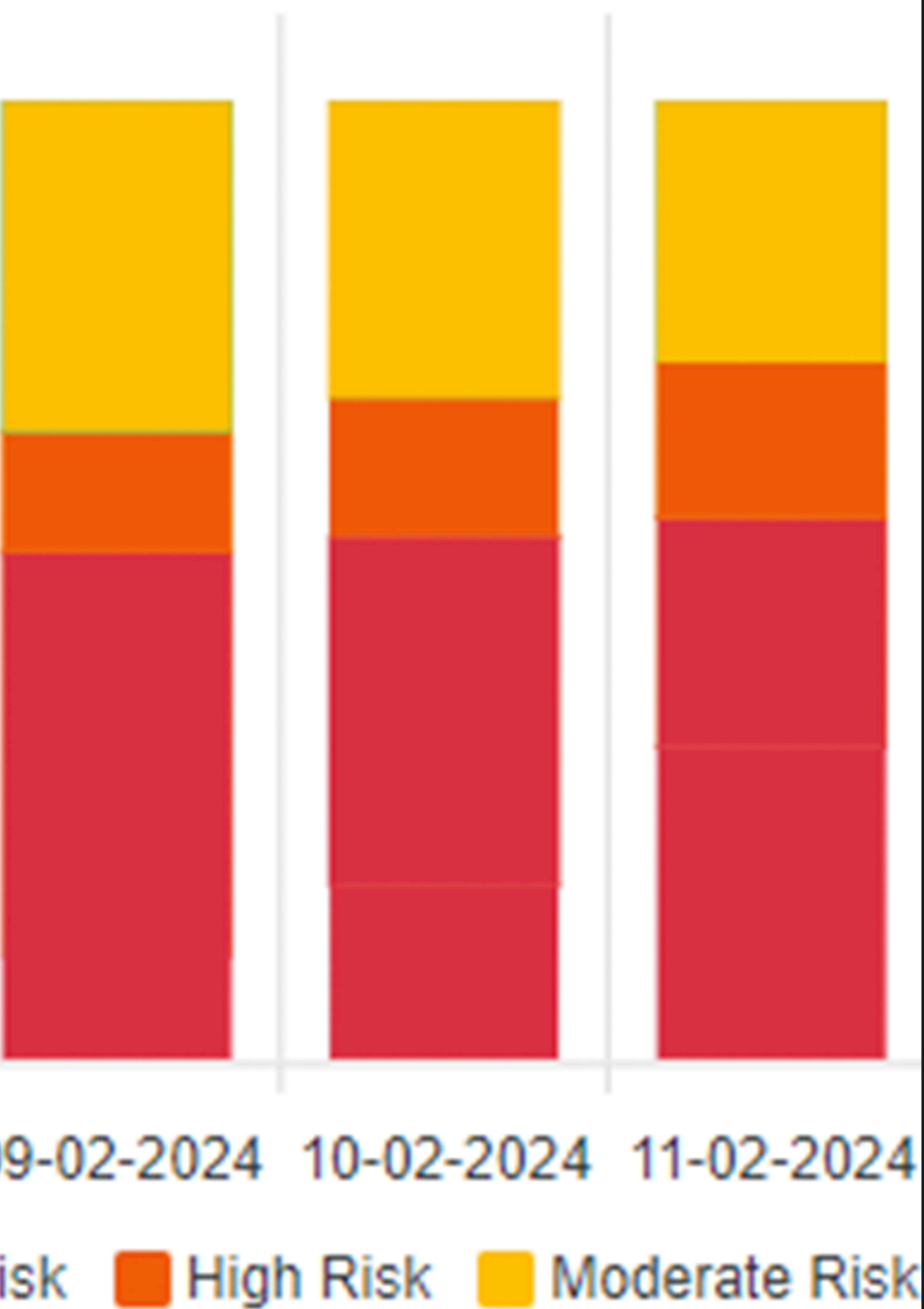
A Clarence C-1 was installed within a patient kitchen in the neonatal ward of the hospital, close to the sink outlet.

The C-1 box provided 24 hour monitoring of the water temperatures within the pipework, monitored significant flow events and measured biofilm levels within the water.

The system was also able (through the unique Seraph Protect system) to provide an overall risk level.



7 Day Device Trend



The Results

The Clarence system led to an early identification that there was indeed poor temperature control of the hot water with average temperatures often being between 30-40 degrees Celsius.

It also quickly became apparent that the number of significant flow events were low, with most days only having 3-4 occurrences.

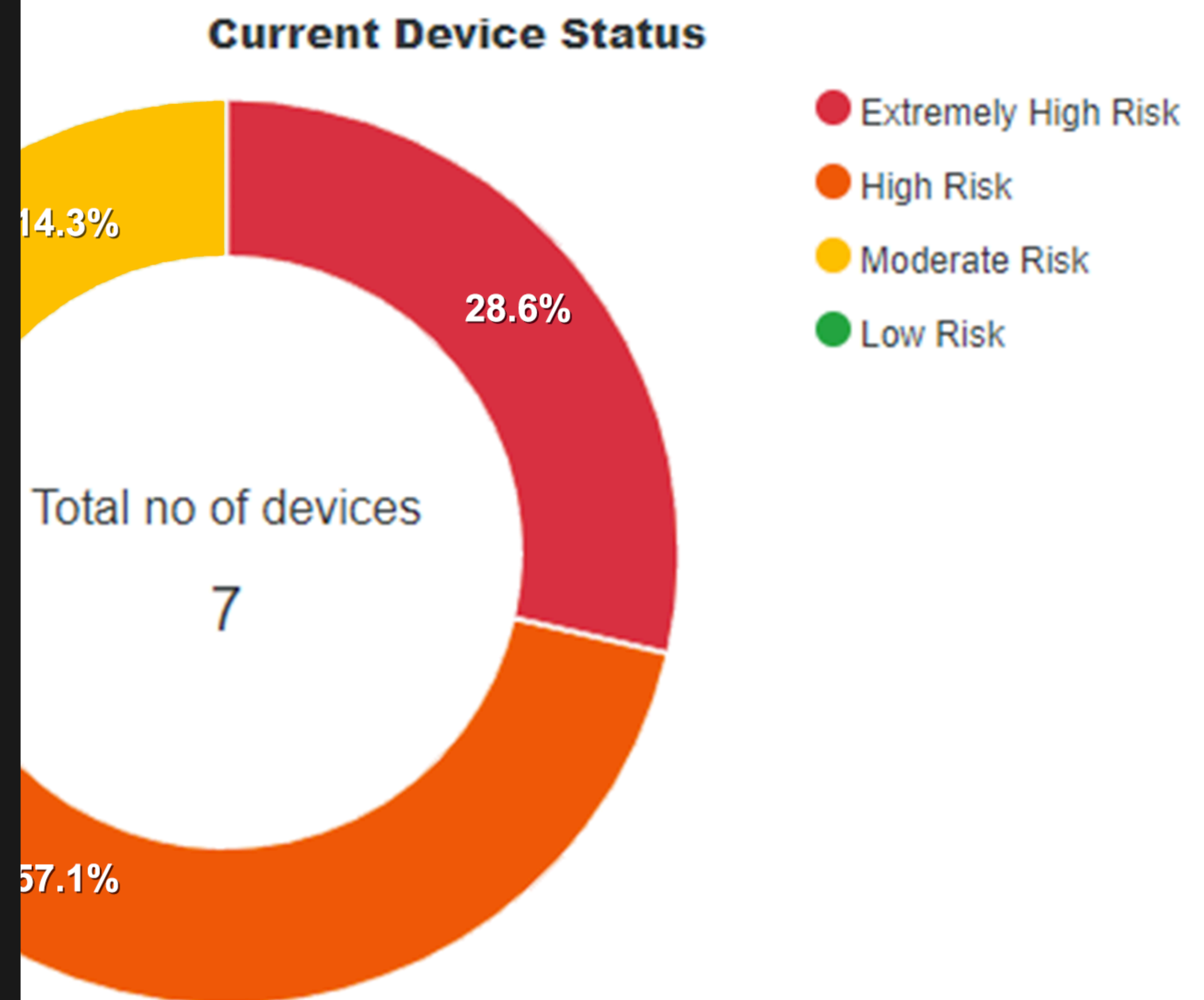
Upon further analysis, patterns emerged with significant flow events lining up with expected high usage times, with very few flow events occurring outside of these times.



The Results

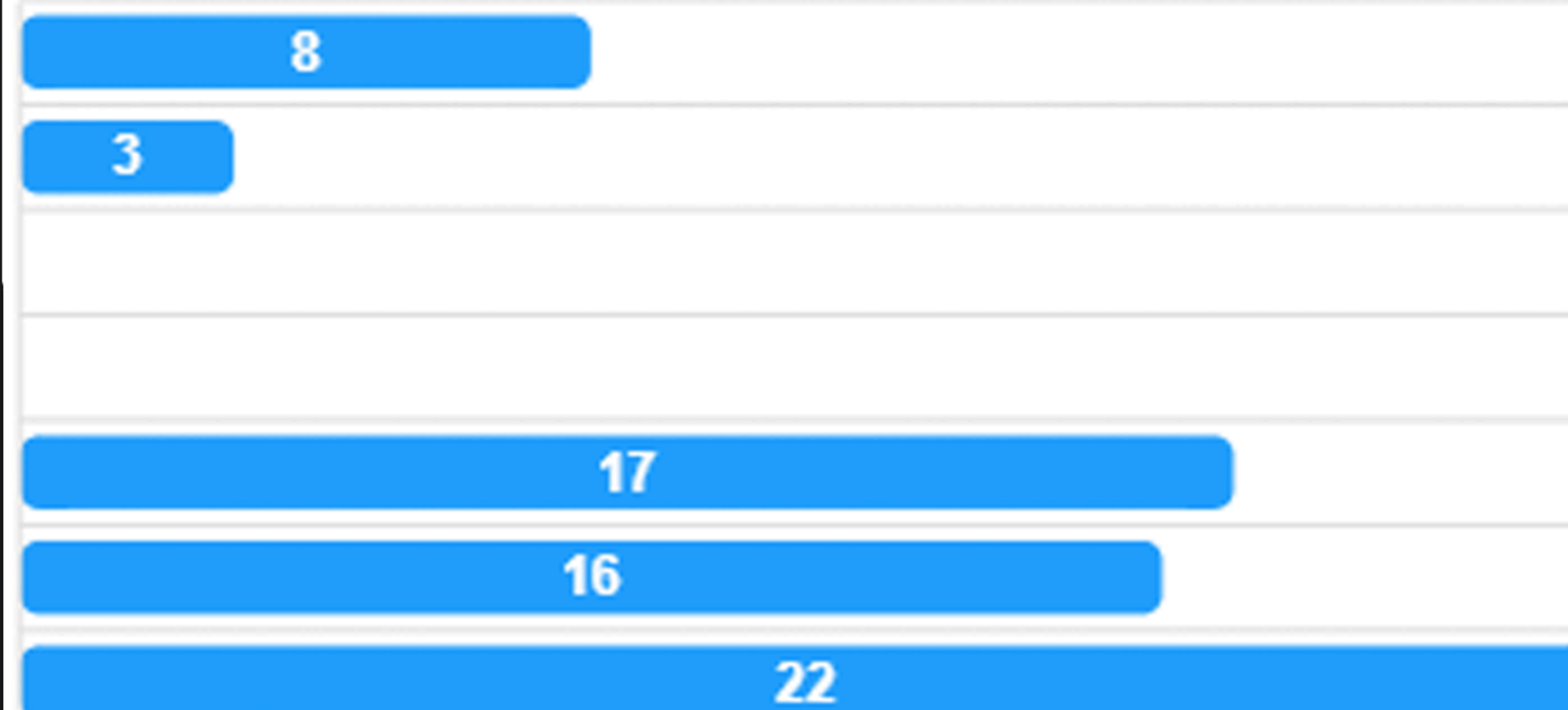
After three weeks, the early stages of biofilm levels were highlighted by the system triggering alerts. Angel Guard then worked closely with the trust and their water management partners who conducted water testing of the pipework and tap outlet. The results tested positive for *Pseudomonas Aeruginosa* measuring 6 CFUs (Colony Forming Units).

Disinfection and cleaning then took place and the tap was placed on a daily flushing register to help improve temperature control.



Mixed Return

Number of Flow Events





The Benefits

The Clarence system collected frequent real-time readings and analysed the data through the Seraph Protect system.

Through this analysis, the risk was correctly identified and several countermeasures were put into place. These included regular and planned flushing, alongside chemical disinfection.

Following this action, the system had shown that the biofilm levels started to subside, and consequently the risk indicators fell to acceptable levels.



The Conclusion

Through the 24 hour monitoring of temperature, flow events and biofilm detection, the Clarence system was very quickly able to provide a high risk level with relevant contributing factors identified, informing and empowering the water management company to take quick action and employ countermeasures, potentially saving the lives of babies within the unit.

Continued monitoring ensures that the babies within the neonatal unit remain protected and safe from water-borne pathogens and provides a real-time insight into the health of the water at any time from any device.

