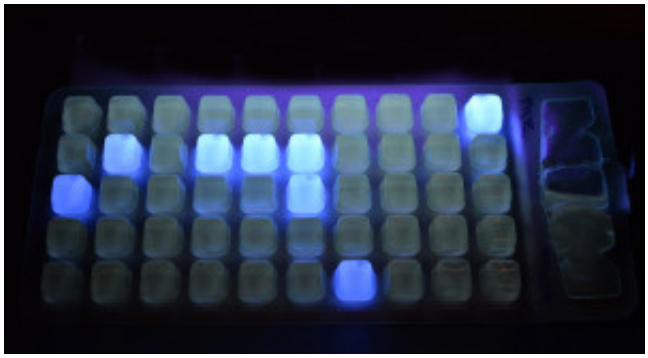
New test for assessing hospital water quality can lead to fewer patient infections

The bacterium *Pseudomonas aeruginosa* is an important pathogen that is often found in hospital water systems, from where it can lead to infections of patients, sometimes with severe consequences (e.g. blood infections, and infections in cystic fibrosis and cancer patients). Regular testing of hospital water from taps for this bacterium is essential for safeguarding patient health. Additionally, the bacterium is a significant contaminant of spa and hydrotherapy pool waters, causing an infection called “hot tub rash” as well as infections of the ear and eye. Currently, the routine test for *Pseudomonas aeruginosa* in water is laborious, must be undertaken within a microbiological laboratory environment, and takes at least 48 hours before results are available.



An image of a Pseudalert test

A recent paper by David Sartory and colleagues, and published in the Journal of Water and Health (2015, volume 13, pages 427-436), reports on a new simpler test that gives reliable results within 24 hours and can be carried out by trained operatives within a hospital environment. The test is also more sensitive than the current reference method, and in the study recovered more *Pseudomonas aeruginosa* from hospital waters.

The test, Pseudalert®, has been developed by IDEXX Water, and is based on the addition of a pre-prepared reagent to a 100 ml water sample, mixing and adding to a multi-well pouch (Quanti-Tray®) which is sealed and then incubated for 24 – 28 hours. The Pseudalert reagent contains a selection of nutrients and compounds that enhance the growth of *Pseudomonas aeruginosa*, as well as suppressing the growth of any other bacteria present in the water. Where *Pseudomonas aeruginosa* is present a fluorescent chemical is produced in the well which can be detected under a UV lamp. The number of fluorescing wells is equated to the most probable number of *Pseudomonas aeruginosa* present.

The paper presents data showing the Pseudalert Quanti-Tray test being evaluated against the

reference method (ISO 16266) by analysing samples by both methods, with the data being analysed by a reference ISO statistical analysis procedure. The outcome of this analysis was that Pseudalert/Quanti-Tray produced higher counts than the reference method. This method permits more rapid detection of *Pseudomonas aeruginosa* in hospital waters, thereby allowing prompt remedial action and reducing the likelihood of infection of patients.

Publication

Evaluation of an MPN test for the rapid enumeration of Pseudomonas aeruginosa in hospital waters.
Sartory DP, Pauly D, Garrec N, Bonadonna L, Semproni M, Schell C, Reimann A, Firth SJ, Thom C, Hartemann P, Exner M, Baldauf H, Lee S, Lee JV
J Water Health. 2015 Jun