

Air Disinfector helps fight viral disease

The infection prevention and control programme at Hereford Hospitals NHS Trust is showing excellent progress this year and technology company Inov8 Science is delighted that some of this success is being attributed to the AD (Air Disinfection) unit.

Emulating the natural disinfection properties of the open air (The Open Air Factor) the AD emits a constant low level stream of hydroxyl radicals that attack airborne bacteria and viruses.

Measuring less than 41 x 20cm, the AD is a small device that is generally fixed to a wall in locations with the greatest potential for pathogen proliferation. So, for example, at Hereford units were initially placed throughout the older Nightingale style wards where there had been particular problems with outbreaks and ward closures. Subsequently units have been placed in all wards in the main hospital except for the children's and women's health wards.

Reporting excellent progress, Hereford Hospital NHS Trust has had no MRSA bloodstream infections since April 2009 and Clostridium difficile numbers have more than halved compared with this time last year. Dr Budd, Medical Director and Director of Infection Prevention and Control said, "We are very pleased with these figures and think they reflect the impact of the introduction of MRSA screening of all hospital inpatients, reviewing the antibiotic prescribing policy, continued vigilance about hand hygiene, extra auditing of infection prevention practices on all our wards, and possibly the installation of Inov8 air disinfection units on nine wards. It is very gratifying to see these results and naturally we are keen to maintain this progress and do even better in the future."

Dr Alison Johnson, Consultant Microbiologist at Hereford, believes that it is difficult to attribute success with a particular organism to one part of the infection prevention strategy. However, she said, "We do think the Inov8 AD units are making a contribution, particularly in preventing norovirus outbreaks and ward closures. The AD units were installed in some of our older Nightingale style wards in June 2008 and then in the main hospital wards in January 2009. In this period between June 2008 and January 2009, there was one norovirus outbreak in the older wards (which lasted only 3 days) and 11 norovirus outbreaks in the main building, which resulted in 112 days of ward closures, affecting 137 patients and 61 staff. However, since the units were installed in the main hospital building there have been no further outbreaks of norovirus or ward closures."

"As time passes, it is looking more and more as if the AD units are effective in the prevention of the spread of norovirus infection."

Summarising her views on the benefits of the AD units, Dr Johnson added: "I think that more hospitals could benefit from these devices, particularly if there is further evidence relating to their effect on ward closures."

Noroviruses are part of a group of viruses that are the most common cause of gastroenteritis (upset stomach) in the UK. Affecting between 600,000 and one million people in the UK every year, norovirus is a particular concern within contained environments such as hospitals, nursing homes and schools. Norovirus spreads very easily from person to person and can survive for several days in a contaminated area.

There are many types of norovirus, and it is possible for infection to occur several times because, following infection, immunity to the virus only lasts for 14 weeks.

Gill Hill is the Matron in Infection Prevention and Control at Hereford Hospitals NHS Trust. She admits to a high level of scepticism when she

was first made aware of the Inov8 AD units. However, reviewing the evidence, she says, “We have been absolutely delighted with the success that we have achieved to-date with the AD units. Norovirus represents a major challenge to hospitals – national data shows that 18 in every 100 patient admissions carry the norovirus infection and with no treatment currently available, our success in controlling the virus can only be attributed to the AD units in tandem with normal hygiene measures.”

Commenting on the benefits of norovirus control, Gill added, “Whilst the symptoms of an infection (vomiting and diarrhoea) usually only last for a day or two, those affected are still contagious for a further 48 hours, so staff that catch the disease are required to stay at home for two days after symptoms subside. This places a heavy load on staffing and in combination with ward closures and operation delays has a major effect on the hospital.

“In the absence of any opportunity to prevent norovirus outbreaks, the AD units have become the only means by which we can minimise the threat. In my view, even if the ADs had no effect on any other organisms, their role in norovirus prevention would be sufficient justification for using them.”

During early October 2009 Gill's views on the benefits of the AD units was further reaffirmed when norovirus was diagnosed in one patient and a staff member. In the past this would normally lead to an outbreak of the disease and ward closure, however, Gill has been pleased to report that no such outbreak has occurred.

It has been estimated that norovirus outbreaks cost the NHS around £100 million and that they could cost the economy a further £12 million per week in lost productivity.

Looking forward, Inov8 Science Chief Technology Officer Dr Ian Widger says, “Norovirus is often termed the ‘winter vomiting disease’ because infection levels generally rise at this time of year. The results at Hereford

are particularly pleasing and we congratulate them on their excellent results. We are hopeful that this technology may also assist in the fight against swine flu."

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Note to editors:

- Inov8 Science Limited is a wholly owned subsidiary of the AIM listed company, Mid-States PLC.
- Trials on the Inov8 AD at the Health Protection Agency's Porton Down Laboratory have demonstrated 99.999% reduction in the MS2 Coliphage (the standard surrogate used for viral tests) in addition to Staphylococcus epidermidis. Similarly, trials at Leeds University have shown dramatic levels of pathogen reduction in aerobiological chambers that were dosed with Staphylococcus Aureus and Clostridium Difficile.
- Each AD treats air space of approximately 10m x 10m x 3m in typical rooms.
- Further information, images and articles are available upon request.
- Please contact Buttonwood Marketing if you would like to interview any of the staff at Inov8 Science