

**Inov8 Science Ltd**

**Microbiological AD Evaluation at London Bridge Hospital (September/October 2010)**

**Introduction & Objectives:**

Run in co-operation with the London Bridge Hospital, located in Central London, the objective of the evaluation was to assess the effect of the Inov8 Air Disinfection (AD) Unit on the environmental microbial load in one single and one double room in the ITU. Air samples and contact plates were initially taken in the unit without an AD installed. A unit was then installed in each area and after a period of the AD Units operating, further samples were taken for comparison.

The sampling was carried out by Inov8's Air Testing Division and the analysis of the samples carried out by MS Laboratories of Wellingborough, an accredited laboratory. The analysis certificates are kept on file at Inov8 Science Ltd and may be inspected upon request.

**Sampling Protocol and Schedule:**

Air samples of 200L were taken using an 'IUL Spin Air' air sampler and pre-poured culture media plates of Tryptic Soy Agar (TSA) and Sabouraud Dextrose Agar with Chloramphenicol (SAB + C). Surface samples were taken using 'Rodac' plates of the same types of Agar.

Samples were taken at fixed locations in the ward area and at the same time of day on each occasion to try to ensure consistency in the environmental conditions. One location in each of the single and double rooms was chosen for each type of sample, and in addition baseline surface samples were taken in the corridor outside the ward area, as indicated:

Air: AS1: Grey Trolley, Single Room  
AS2: Desk, Double Room  
Surface: CP1: Top of Conduit, Single Room  
CP2: Window Sill, Double Room  
CP4: Top of Glove Box, Corridor (Baseline)

**Results and Discussion:**

The results of the sampling exercise are shown in the Appendix. The Air Samples show a reduction in bacterial TVCs (Total Viable Counts) of 48% in the Single Room and 47% in the Double Room, whilst Surface samples showed corresponding reductions of 89% and 86%. These figures, whilst lower than those achieved in laboratory conditions, are typical for the relatively complex environment found in a working ward.

A point worth noting, however, is that the background levels of surface TVCs in the corridor, where no ADs installed, increased by 56%. This indicates that there was a change in the environmental conditions within the ITU that resulted in an increase in the TVC count and projecting this onto the reductions seen in the Single and Double Rooms means that it is likely that the reductions in the airborne contaminants were higher than those that the tests showed.

Overall the impact of the AD on both the airborne and surface contamination in the ITU is significant.

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**APPENDIX**

**London Bridge Hospital: Air & Surface Sampling Results, Sept-Oct 2010**

**Sampling Data**

Sample ID	Location	TVC (CFU/200l)		% Reduction
		Ave before	Ave After	
AS1	AIR SAMPLE 1: Grey Trolley, Single Room	39	20	48.3
AS2	AIR SAMPLE 2: Desk, Double Room	38	20	46.5
CP1	SURFACE SAMPLE Top of Conduit, Single Room	31	3	89.2
CP3	SURFACE SAMPLE: Window Sill, Double Room	34	5	86.4
CP4	AIR SAMPLE BASELINE: Top of Glove Box, Corridor (No AD, baseline)	33	51	-56.1

