



Hospital washrooms with jet air dryers have higher microbial burden suggests pilot study

Further studies are encouraged to determine risk of environmental microbial contamination resulting from different hand-drying methods

November 30, 2017- A pilot study undertaken by experts from the Microbiology department at Leeds Teaching Hospitals NHS Trust and the University of Leeds suggests that hospital washrooms with jet air dryers may have higher levels of environmental microbial contamination than those using single-use paper hand towels.

The study which was performed over three months, was undertaken by leading microbiologist Professor Mark Wilcox and funded by the European Tissue Symposium, ETS. The levels of environmental microbial contamination were examined in two men's washrooms within one hospital: one had paper hand towels as the method of hand drying after hand washing and the other a jet air dryer. The washrooms were used by hospital staff, patients and visitors.

Professor Wilcox, who led the study, explained "*There were some significant differences and generally lower levels of microbial contamination in the paper towel washroom than in the jet air dryer washroom. A greater range of microbes was recovered from the jet air dryer washroom, the floor and dryer unit were more heavily contaminated, and mean counts of microorganisms recovered from air were 1.6 fold higher.*"

Notably, higher counts of *Enterococcus faecalis*, which could be related to toileting, followed by suboptimal handwashing, were recovered from the washroom with the air dryer versus the washroom with single use paper towels.

The pilot study concluded that it is feasible to carry out longitudinal testing to examine the levels of environmental contamination associated with different hand-drying methods. The study suggests that microbial burdens may be higher in hospital washrooms employing jet air versus paper towel hand drying.

The findings could have significant implications for hospitals. General infection prevention and control principles in healthcare settings aim to limit the spread of micro-organisms due to the increased susceptibility of patients to infection and to the greater prevalence of potential and/or antimicrobial-resistant pathogens.

"The key issue is whether this could have adverse infection consequences for washroom users or, in a clinical setting, patients," explains Professor Wilcox. *"We encourage further studies to determine the risks associated with hand-drying method-associated environmental microbial contamination."*

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Notes to Editors

Key study findings:

- Mean number of micro-organisms recovered from air in washroom with jet air dryers was 1.6-fold higher than in washroom with paper towels
- Microbial burdens on floors were significantly higher in washroom with jet air dryers than in that with paper towels – 2.0×10^4 vs 3.3×10^3 cfu/mL
- Jet air dryer casing also had significantly higher microbes counts than the paper towel dispenser – 1.2×10^5 vs 2.4×10^4 cfu/ML
- *Enterococcus faecalis* recovered from the jet air dryer unit was 3.4×10^3 cfu/mL compared with 71.4 cfu/mL on the paper towel dispenser

A range of previous studies have found that jet air and warm air hand dryers can spread microbes and viruses in a washroom environment.

<http://europeantissue.com/hygiene/studies/potentialcontaminationenvironment2014/>

<http://europeantissue.com/hygiene/studies/comparison-of-different-hand-drying-methods/>

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