



Hand drying with single use towels shows lower level of airborne microbe dispersal and contamination after visiting the washroom than other hand drying methods

A University of Westminster peer-reviewed and published study demonstrates that single use towels spread fewer microbes and present the lowest risk of cross-contamination

Brussels, Belgium - April 8, 2015 - New research by the University of Westminster, commissioned by ETS, the European Tissue Symposium, concludes that drying hands with single-use towels shows a lower level of airborne microbe dispersal and contamination. This could help achieve more hygienic washroom settings.

The study¹, undertaken by leading microbiologist Keith Redway who has already presented top line findings at last year's [HIS Conference](#) in Lyon, looked at the potential for microbial contamination from hand-drying and the potential risks for airborne microbe dispersal, particularly if hand washing is sub optimal. Four different hand drying methods and three different test models were used to determine differences between the drying methods and their capacity to disperse microbes on the hands of users to other occupants of public washrooms and into the washroom environment.

Paper towels, a textile roller towel, a warm air dryer and a jet air dryer were compared using three different test models: acid indicator with lemon juice, yeast, and bacterial transmission from hands when washed without soap. The peer-reviewed study was published in the March 2015 edition of the '[Journal of Hospital Infection](#)'².

The results in numbers

A jet air dryer dispersed liquid from users' hands further and over a greater range – up to 1.5m – than other hand drying methods. The jet air dryer also led to the greatest dispersal of microbes into the air at both near and far distances for each of the tested models. Levels recorded at the drying device revealed an average of 59.5 colonies of yeast for the jet air dryer compared with an average of just 2.2 colonies of yeast for paper towels. At a distance of 0.2 m jet air dryers resulted in 67 colonies compared with only 6.5 for paper towels. At a distance of 1.5 m the jet air dryer recorded 11.5 colonies of yeast compared to zero for paper towels.

“These findings clearly indicate that single-use towels spread the fewest microbes of all hand-drying methods,” said Keith Redway. *“Cross contamination in public washrooms is a legitimate public health concern. The extent to which jet air dryers disperse microbes into the washroom environment is likely to have implications for policy guidance to facilities managers operating in a wide range of environments from sports stadia and airports through to schools and hospitals.”*

¹ Comparison of different hand-drying methods: the potential for airborne microbe dispersal and contamination. E.L. Best*, K. Redway** *Microbiology Department, Old Medical School, Leeds General Infirmary, Leeds Teaching Hospitals NHS Trust, Leeds UK ** Department of Biomedical Sciences, Faculty of Science and Technology, University of Westminster, London, UK

² Online publication at [http://www.journalofhospitalinfection.com/article/S0195-6701\(14\)00372-7/abstract](http://www.journalofhospitalinfection.com/article/S0195-6701(14)00372-7/abstract)

Airborne microbial dispersal

The study also looked at the body height at which microbes were dispersed. It found the greatest dispersal was at 0.6 – 0.9 m from the floor. This is worrying since it equates to the face height of small children who might be standing near a dryer when a parent is drying his or her hands. Small children might therefore possibly be contaminated with the microbes remaining on the parent's hands after washing them.

Hand drying a crucial component of hand hygiene

"Correct hand drying is crucial in completing the hand washing process and reducing the risk of microbe transmission," commented Roberto Berardi, Chairman of the European Tissue Symposium (ETS). "This latest research by the University of Westminster builds on previous studies such as last year's ³ research by the University of Leeds, and adds to the existing body of evidence demonstrating that hand drying using single use towels offers an unsurpassed level of hygiene when drying hands after visiting the washroom and is associated with lower numbers of microbes both on the hands and in the washroom environment than with warm air or jet air dryers."

VIDEO - Hand drying – an important part of hand hygiene:



Or click here to view the video : <http://www.europeantissue.com/hygiene/comparison-of-different-hand-drying-methods-the-potential-for-airborne-microbe-dispersal-and-contamination/>

Notes to editors

Methodology

- Three test models and four different hand drying methods were used:
 - an acid-indicator model
 - a yeast model
 - counts of actual bacteria on the hands dispersed by different hand-drying devices at different heights and at different distances.
- paper towel dispenser (Wepa Clou Comfort) for 10 seconds;
- warm air dryer (World Dryer Corporation, model LE48) for 20 seconds;
- jet air dryer (Dyson Airblade, model AB01) for 10 seconds.
- continuous textile roller towel (Cannon Hygiene, UK) for 10 seconds

Key findings

- Due to their air flow, electric hand dryers show a greater potential for the dispersal of microbial contamination on the hands at different heights and to greater distances than towels; the jet air dryer showing the greatest potential.
- The visualization of the air flow from a jet air dryer helps explain the results of this study. Claimed air speeds for jet air dryers of over 600 kph are likely to increase the risk of

³ <http://authors.elsevier.com/sd/article/S0195670114002461> and <http://www.europeantissue.com/hygiene/potential-for-contamination-of-the-environment-study-2014/>

transmission of microbes from the hands of users to other occupants of public washrooms and into the washroom environment.

- Ends -

About ETS

ETS is the European Tissue Paper Industry Association. The members of ETS represent the majority of tissue paper producers throughout Europe and around 90% of the total European tissue production. ETS was founded in 1971 and is based in Brussels. For more information:

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Editorial contacts:

duomedia

Maya Staels | tel. +32 2 560 21 50 | maya.s@duomedia.com

ETS

Roberto Berardi | tel. + 39 011 8128810 | info@europeantissue.com