

EXPERT STUDY FINDS JET AND WARM AIR HAND DRIERS CONTAMINATE AIR IN WASHROOMS

Bacteria are blown into the air, onto users and onto bystanders, risking cross contamination between washroom users



harmless type of bacteria called Lactobacillus, which is not normally found in washrooms. This was done to mimic hands that have been poorly washed. Subsequent detection of the Lactobacillus in the air proved that it must have come from the hands during drying. The experts collected air samples around the driers and also at distances of one and two metres away.

Air bacterial counts close to jet air driers were found to be 4.5 times higher than around warm air driers and 27 times higher compared with using paper towels. Next to the driers, bacteria persisted in the air well beyond the 15 second hand drying time, with approximately half (48%) of the Lactobacilli collected more than 5 minutes after drying ceased. Lactobacilli were still detected in the air 15 minutes after hand drying.

CROSS CONTAMINATION

"It is not acceptable to have contaminated air in washrooms," said Marc Van Ranst, professor in virology and chairman of the Department of Microbiology and Immunology at the University of Leuven in Belgium. "Cleaning and facilities managers and those running sporting or catering establishments need to have access to the very latest advice on minimising the spread of infection in washrooms and public places, and to act on it."

Containment of infection in public places and particularly in washrooms, is also a priority for governments and public health experts. Stories of the spread of infection in a hospital setting continually hit the newspapers across Europe. The extent to which jet-air and warm air driers disperse microbes in the washroom environment raises serious questions concerning policy guidance to avoid the spread of infection in hospitals and other public environments. This research clearly shows that hand drying with single use towels has the least risk of airborne microbial contamination. Professor Wilcox commented: "We increasingly

emphasise the need to wash hands to control the spread of infection, but we have not considered the best way to dry them. Best does not solely mean convenience. Drying hands using electric driers risks spreading microbes in the washroom, and this is clearly not desirable when trying to limit the spread of bacteria or viruses from person to person."

DRY HANDS ARE HYGIENIC HANDS

"The importance of hand washing to prevent spread of infection is widely accepted. However, to date hand drying has received much less attention," commented Roberto Berardi of the European Tissue Symposium (ETS) who commissioned the study. "Correct hand drying completes the hand washing process and reduces the risk of microbe transmission. Hand drying alternatives in public washrooms are based on either water absorption (single use paper and textile towels) or water dispersal (warm air driers, high speed air driers). This research adds to the existing body of evidence demonstrating that hand drying using towels is associated with lower numbers of microbes both on the hands and in the washroom environment than with warm air or jet air driers," he concludes.

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KEY FINDINGS:

- Air bacterial counts close to jet air driers were 4.5 times higher than around warm air driers and 27 times higher compared with using paper towels.
- Next to the driers, bacteria persisted in the air well beyond the 15 second drying time, with 48% of microbes still airborne after 5 minutes. Lactobacilli were still detected in the air 15 minutes after hand drying.
- Drying with warm air and jet air driers resulted in widespread droplet release; contamination was found on all areas of the body demonstrating potential for spread and inhalation to other washroom users.
- Airborne bacteria were dispersed one metre away within the first five minutes of sampling and bacteria were found up to two metres away.

Expert scientists have found that jet-air and warm hand driers can spread bacteria in public toilets. A recent study shows that jet and warm air hand driers spread bacteria into the air and onto users and those nearby. The findings have significant implications for cleaning, facility and hospitality managers responsible for equipping washrooms in public places.

The study, designed by expert medical microbiologist Professor Mark Wilcox of the University of Leeds and Leeds Teaching Hospitals, and funded by ETS, compared different hand drying methods and their potential to spread bacteria from hands into the air. Jet air driers were found to spread greater numbers of bacteria-carrying water droplets and to spread them further than other drying methods. In addition, the bacteria still continue to be present in the air for a considerable time after the dryer has stopped.

The study has been peer reviewed and published in the Journal of Hospital Infection. It is presented to a global audience of professionals, including expert epidemiologists, microbiologists, public health practitioners and directors of infection prevention and control, at the Healthcare Infection Society (HIS) International Conference in Lyon, France, taking place November 16-18, 2014.

AIRBORNE DISSEMINATION

In carrying out the study, the researchers contaminated hands with a