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Evaluation of bacterial contamination of clean room clothing

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Sources of contamination within cleanrooms must be tightly controlled and continuously monitored to minimize particulate and microbial contamination of sterile medical products. Cleanroom operators are acknowledged as primary sources of contamination within cleanroom environments.

Aim: A study was conducted to determine which areas of cleanroom clothing were most highly contaminated.

Method: Three detection methods were initially assessed to select a reproducible assay to accurately evaluate suit contamination, after which contact plates were selected for use in this study. The impact of wearing gloves during donning of cleanroom clothing was also investigated.

Results: No significant difference was found in cleanroom suit contamination levels when no gloves, non-sterile or sterile disposable gloves were worn before donning cleanroom clothing. Higher bacterial contamination levels were recorded on suits worn by males, with test sites on the chest and nape of the neck yielding greatest contamination levels. Higher contamination levels were also recorded for operators with dominant left hands. Contamination levels on suits with elasticized cuffs were significantly higher than those with snap fastening cuffs.

Conclusion: Data obtained revealed that wearing gloves prior to donning cleanroom garments had no impact on levels of bacterial contamination detected. Greater bacterial contamination was detected on suits worn by male subjects. Suits with snap-fastening cuffs were more effective in controlling contamination than suits with elasticated cuffs.

Biography

Noelle O Driscoll is a pharmacist with a PhD in microbiology and is a lecturer in the School of Pharmacy & Life Sciences, Robert Gordon University (RGU), Aberdeen, Scotland. Her current research areas are aseptic manufacturing, veterinary pharmacy and novel antimicrobial agents and she has had several articles published in these areas. Andrew Lamb is a senior lecturer in microbiology in the School of Pharmacy & Life Sciences, RGU. His research areas include novel antimicrobial agents and aseptic manufacturing, with in excess of 30 publications in these fields in peer reviewed journals. Laurie Smith, Mary Tully and Hannah Prescott are research students in the School of Pharmacy & Life Sciences, RGU.

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