Microbial Contamination Associated with Computer Keyboards and Mouse Devices in Diyala University

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Abstract

Background: Surface contamination of public user interface systems such as computer keyboards and mouse devices may play a role in community-acquired outbreaks by acting as an environmental vehicle in transmission of potential hazardous microorganisms. There is no economical way to test all keyboards and mice out there, but there is a common-sense way to prevent bacterial contamination or eliminate it if it exists.

Objectives: To explore the bacterial contamination rates in multi-user and single-user computer accessories (keyboards and mouse devices) in certain colleges of the Diyala University.

Materials and methods: This study was conducted in Bacteriology laboratory- Colleges of Veterinary Medicine- Diyala University for the period from October 2012 to April 2013. A total of 155 swabs were collected aseptically from 60 computers in 4 colleges, namely, College of Medicine, Veterinary Medicine, Science, and Education- Pure Science. Swabs were streaked on blood and MacConkey's agar plates then incubated for 24 hours at 37 ˚ C. Final identification of bacterial species was based on standard bacteriological and biochemical criteria.

Results: The results showed that the overall contamination rate in the four colleges was (54.8%). The highest isolation rate of bacterial contaminant was *Staphylococcus epidermidis* (30.6%), followed by *Escherichia coli* (29.4%). Fungi constitute (17.6 %) of isolates. The College of Veterinary Medicine rank at the top with significant highest contamination rate (52.7%), followed by the College of Medicine with a contamination rate (21.2). Computers of the internet centers harbor the significant highest contamination rate compared to administrative units (71.8% and 28.2%) respectively. The contamination rate was higher in mouse devices compared to keyboards (57.6% *vs* 42.3%).

Conclusion: The study concluded that continuous education of students and employees about the risk of bacterial contamination arise from using the computers, beside the periodic disinfection of computer accessories may aid the fight against transmission and spreading of infectious pathogens.

Keywords: Computer keyboards, Computer mouse devices, Microbial contamination, surface contamination.

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