

Hospital Door Knobs as a Source of Bacterial Infection

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Abstract

Nosocomial (hospital-acquired) infections are an important focus of infection prevention in all countries, but in developing countries they are a major cause of preventable disease and death.

Despite the use of a variety of method and techniques for cleaning and sterilization of environmental surfaces, they still play an important role in transmission of pathogens especially healthcare-associated pathogens including Methicillin Resistant Staphylococci (MRSA), Vancomycin Resistant Enterococci (VRE), *Clostridium difficile*, *Acinetobacter spp* and many others. These organisms pose clinically important antimicrobial resistance problems and are among the most common causes of HAIs in intensive care units.

Monitoring and evaluation of hospital door knobs is vital procedures for infection control not only because of the possibility that contaminated door knob may dramatically increase the risk of acquiring infections that often results from contact with restroom door handles contaminated by those who don't wash their hands, gloves, as well as sick people, but also the possibility of cross contamination of many objects and subjects in the hospital environment.

In this study, 100 swab samples were collected from door knobs from the different departments of Al-Shifa hospital (including wards, offices, and rest rooms). All samples were transported and processed with two hours of collection. The swabs were cultured on routine microbiological media and incubated for 24 hours before examination and bacterial identification. Antimicrobial susceptibility of the isolated bacteria was also performed according to CLSI guidelines.

The results of this investigation has shown that most of the tested samples contained a variety of pathogenic and nonpathogenic organisms like methicillin-resistant *Staphylococcus aureus* (MRSA) which is 100% resistant to teicoplanin and 96.5% to penicillin and erythromycin, *klebsiella pneumonia* which exhibited 50% resistance to meropenem, *Aeromonas hydrophila* which is 100% resistant to teicoplanin , and *Serratia marcescens* which is 100% resistant to tetracycline and all of them were sensitive to imipenem.

These finding are alarming and should be considered by the hospital infection control committees in order to reduce the risks of spread of MDR pathogens from hospital's doors knobs.

Key World: Door knob, Nosocomial infections, MRSA, *klebsiella pneumoniae*, *Aeromonas hydrophila*,