Radiographer Infection Control Compliance Are Radiology Departments a Potential Source of Nosocomial Transmission?

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Purpose

Hospital personnel are estimated to be responsible for 20-40% of patient-to-patient spread of nosocomial pathogens.¹ "Nosocomial infections are of growing concern in medical facilities, in part because many of these infections tend to result from micro-organism that are resistant to antimicrobials and are therefore difficult to treat".²

Given this concern and that most hospital-based Radiology departments have a high turnover of both inpatient & outpatient clientele, radiographer compliance to Infection Control Guidelines & Standard Precautions could be critical in preventing transmission of such pathogens. This paper therefore aims to;

1. Gain information about nosocomial pathogens of concern in health care settings
2. Evaluate the knowledge of, and compliance to infection control by Radiographers
3. Investigate the cleanliness of Radiology Departments

Methods and Materials

Included a survey, microbiological testing and literature review. An Infection Control Survey was sent to seventeen metropolitan and rural Radiology Departments in Queensland. This survey was targeted at radiographers, to gain information on infection control knowledge, compliance, influences and training. Microbiological testing was performed at two anonymous Radiology Departments and included surface swabs and Indoor Air Quality (IAQ) Testing. The Literature Review obtained information from electronic databases, radiology department manuals and internet sites.

Results

Literature Review: Nosocomial pathogens of concern include Methicillin-resistant Staphylococcus Aureus (MRSA) and Vancomycin-resistant Enterococci (VRE). "Capable of living for weeks on surfaces, VRE (have) been recovered from contaminated surfaces, including carpet, and can live on hands for up to 3 hours".³ Current recommendations for both MRSA and VRE is that effective handwashing is the most effective way of preventing their transmission.³⁴ Compliance to precautions for these pathogens was found to be low, and there has been documented "high morbidity and mortality associated with hospital acquired MRSA/VRE in compromised host".³
Survey: When in contact with known pathogens, the use of personal protective equipment (PPE) was exceptional at 92.5%. Preventative measures however were lacking, with 28.9-45.2% reporting surface hygiene between patients and less than 50% MRSA precaution compliance. 78.4% of respondents reported a desire to implement better infection control techniques. Annual Infection control training was reported in 68.4% of respondents.

Microbiological Testing: Confirmed poor compliance with infection control. 37-40% of the nineteen surfaces swabbed were found to be within acceptable standards. The tabletop and upright bucky displayed the most alarming surface swab result, culturing staphylococci and coliforms. Orthopantomogram machines appeared to be overlooked with bacterial standard plate counts of 570 time greater than the acceptable margin.

Conclusion

Research suggests that standard precautions can be sufficient in preventing multi-resistant pathogens such as MRSA and VRE. The presences of microbial-sensitive and antimicrobial-resistant pathogens were found on radiographic surfaces. Survey results provided evidence of lacking infection control knowledge and compliance within radiology departments. Exceptional compliance with PPE in the case of known pathogens and an expressed desire to implement better infection control techniques suggests improvements could be achieved. Regular education with an emphasis on pathogens, their mode of transmission and the importance of standard precautions would be beneficial. Mandatory online teaching modules with anonymous testing could provide a means for confidential broadcast and audit knowledge highlighting areas of weakness to staff and targeting areas in need of further education.

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References


