Identification of Infectious Agents and Microorganisms in Nuclear Medicine Departments

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Issue
Issue

• Nosocomial infections are a major cause of morbidity and mortality worldwide

• Diagnostic medical equipment are prime receptors for such microorganisms

• Accordingly, proper biosafety and infection control practices should be paramount in these settings
Objective

• The objective of this study was to utilize interprofessional education to evaluate the efficacy of decontamination procedures and to identify possible sources of nosocomial infection within nuclear medicine departments.
Methods
Methods

- Nuclear medicine technology (NMT) and medical laboratory science (MLS) students at the University of Mississippi Medical Center engaged in a multi-phase collaborative study
Methods

• NMT students and faculty were trained how to properly collect samples for culture

• Swabs were collected from the nuclear medicine departments of five hospitals and one heart clinic

• Swabs were transported to MLS department

• Collection dates/times were unannounced
Collection Sites

- Dual heads of gamma cameras
- Imaging tables
- Injection chair arms
- Thyroid probes
Collection Sites

Gamma camera heads

Imaging table
Collection Sites

http://www.biodex.com/nuclear-medicine/products/atomlab-960-thyroid-uptake-system
Collection Sites

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Methods

- Plates with “No Growth at 72h” were discarded and reported as such
- Positive plates were processed and organisms were identified
Results
Results

• Total 29 samples
  – 6 clinical sites participated
  – Samples collected from each site

• 21 samples were positive (72%)

• Organisms were identified and results compiled
Results

- Most organisms isolated were common bacteria found on skin or in the environment
- *Staph. epidermidis* was the most commonly isolated organism
  - Common skin flora; harmless to most
  - Could cause serious infections in immunocompromised patients
Results

Other isolates:

- *Staphylococcus haemolyticus*
- *Micrococcus luteus*
- *Bacillus* sp.
- *Corynebacterium* sp.
- Environmental mold
Results

- One culture was positive for methicillin-resistant Staph. aureus (MRSA)
- Confirmed using a Biplate

Mauve colonies on both sides = MRSA
Organisms Isolated in Six NM Departments

- Micro. Luteus
- C. bacterium
- S Haemolyticus
- S epidermidis
- Mold
- MRSA

# of Positive Cultures

- Imaging Table (N=6)
- Injection Chair Arm (N=6)
- GC Head 2 (N=6)
- GC Head 1 (N=6)
- Thyroid Probe (N=5)
Summary

• Results were shared with the corresponding affiliate

• Identified areas with increased numbers of potentially pathogenic bacteria

• Identified a need for improved infection control practices
Conclusion

• Outcomes of this study support the presence of microorganisms in nuclear imaging facilities that can contribute to nosocomial infections

• Technologists must acknowledge the presence of infectious microorganisms and work to establish effective, consistent hygiene, disinfection and decontamination processes
References


2017-2018 NMT Students

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Questions?