
Grace Peterson Nursing Research Colloquium

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Stethoscope Disinfection Rates on the Prevalence of Hospital Acquired Infections

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The Effect of Stethoscope Disinfection Rates Among Health Care Professionals on the Prevalence of Hospital Acquired Infections

Background

We live in an era of increased efforts aimed at preventing healthcare-associated infections. Hospitals create specific guidelines when discussing hand-hygiene, particular protocols for catheter-associated infections or surgical site infections; however, stethoscope cleaning is very rarely brought into the conversation (Ghumman et al., 2018). The heightened awareness of infection control measures in hospitals today has led to further exploration of the personal practice of healthcare workers (Abbasi et al., 2016). One topic relevant to all health care professionals is stethoscope disinfection because many professions use stethoscopes daily; **however, only about 3.9% of health care workers are cleaning their stethoscope after every patient contact and only 9.7% are cleaning it at least once daily (Walsh, 2013).**

Stethoscopes are often implicated as a cause of healthcare-associated infections (HCAIs). The pathogens that exist on stethoscopes can increase the prevalence of hospital acquired infections; however, it is not known to what extent and what type of interventional cleaning should be implemented nationally (Ali et al., 2016). **There is no current consensus on the optimal stethoscope cleaning frequency or method that is recommended for use.**

The minimum frequency as given by the Healthcare Infection Control Practices Advisory Committee (HICPAC) and Centers for Disease Control and Prevention (CDC) is only when the stethoscope is visibly soiled and “on a regular basis”. These guidelines established by the CDC are not particularly clear and the lack of awareness of stethoscope contamination may contribute to healthcare professionals not adhering to cleaning their stethoscopes and having an undesired behavior regarding stethoscope cleaning (Ali et al., 2016). For instance, it has been shown that about **20% of consultants as well as 37% of physicians have never cleaned their stethoscope** (Ali et al., 2016).

Objective

Clearer guidelines must be implemented to all healthcare workers about the necessity and frequency of cleaning their stethoscopes. Findings indicate that HCPs generally do understand the need to clean stethoscopes, but current cleaning behaviors are not sufficient (Ali et al., 2016).

Purpose

There is currently no consensus on the optimal stethoscope cleaning frequency or method that is recommended for use for health-care providers working in hospital settings (Ali et al., 2016); therefore, it is unclear at what frequency and which technique would be most appropriate for HCPs to use to disinfect stethoscopes and whether or not this potential lack of disinfection is contributing to the amount of hospital acquired infections in the United States.

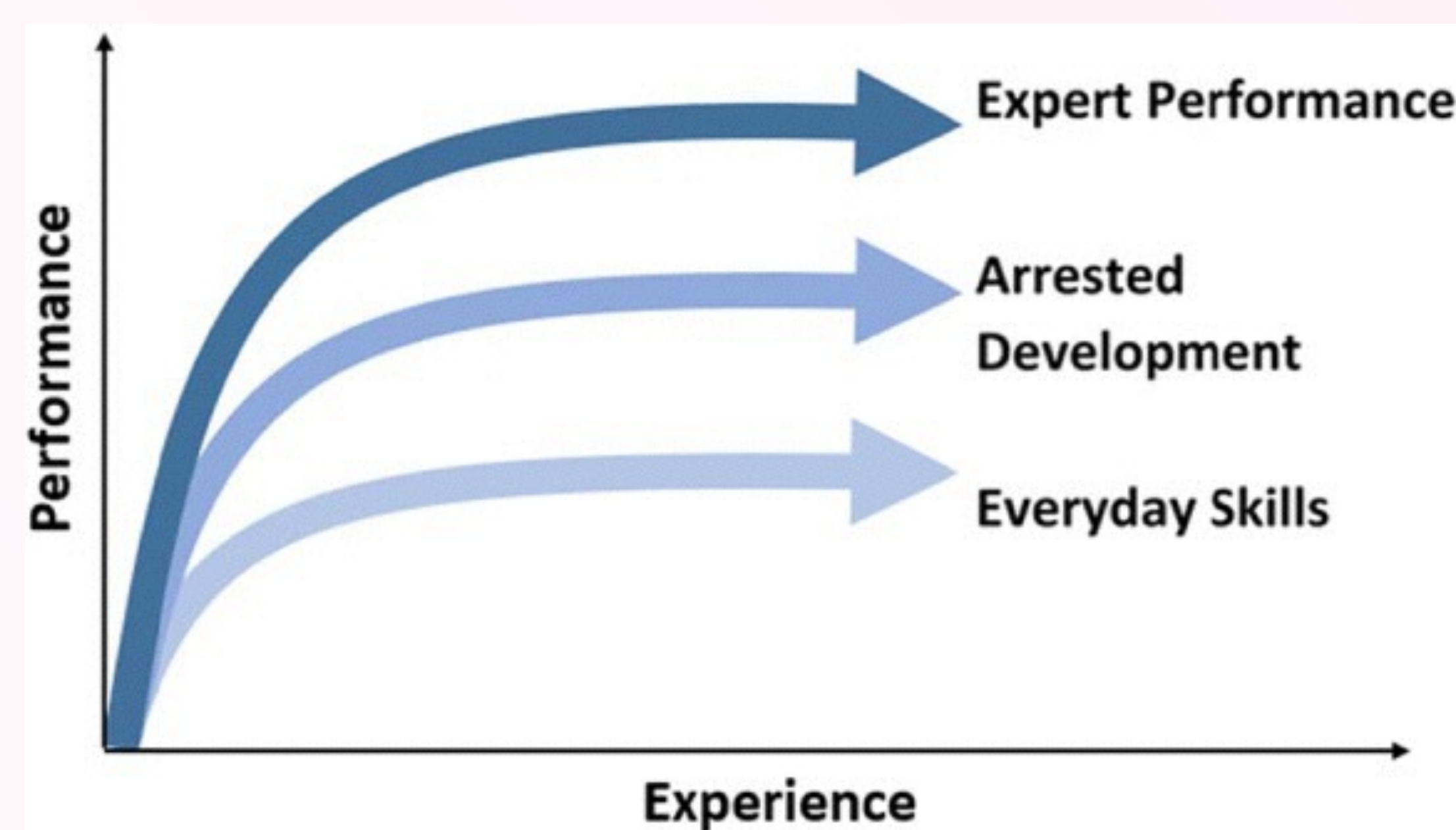
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Research Questions

1. How does the current practice to disinfect stethoscopes by HCPs compare to the recommended practice guidelines as established by the CDC?
2. Is the current practice used by HCPs to disinfect stethoscopes enough to thoroughly disinfect the stethoscopes and prevent hospital acquired infections from occurring?
3. Are the recommended practice guidelines as established by the CDC sufficient in preventing hospital acquired infections or should more detailed guidelines be published?

Conceptual Model & Theoretical Framework

Based on the concept of Ericsson’s Deliberate Practice theory of skill learning, mastery and refinement. The theory of deliberate practice is that with sufficient time and supervised training any individual may dramatically improve their performance (Ericsson, 2008). Fundamentally, the theory also requires incorporating a self-reflective feedback loop into the skill delivery or practice process, rather than simply performing a task repetitively until mastered. To achieve the highest efficiency, there must be time set aside for self-reflection and feedback to allow the learner to hear criticism and make improvements.



This concept was used to guide this study by giving HCPs a well-defined goal being decreasing hospital infection rates caused by stethoscope cross-contamination. Motivation was patient satisfaction, less hospital acquired infections and overall cleanliness. HCPs were taught and shown the correct way to disinfect their stethoscopes by guidelines that would be determined most satisfactory, giving HCPs a chance to practice their technique and ask questions in order to receive feedback. By utilizing this theory in studying HCP stethoscope cleanliness, the number of hospital acquired infections caused by stethoscopes cross-contamination was observed and through mastering disinfection, decreased.

Research Design

The design for this study was an integrative review of literature aimed at discovering the current practice of physicians, nurses and all healthcare providers in stethoscope disinfection. The integrative review of literature was used in order to determine whether the frequency of stethoscope use and frequency of stethoscope cleaning during a typical clinical practice day is adequate, which agents are being used for stethoscope cleaning as well as the belief of whether or not stethoscopes may be a potential source of nosocomial pathogen transmission.

Results

- The lack of clear guidelines and awareness may contribute towards undesired behaviors regarding stethoscope cleaning (Ali et al., 2016). Almost all, 93%, of healthcare workers do believe that stethoscopes can be involved in pathogen transmission; however, only 29% of healthcare workers reported cleaning their stethoscopes after each use.
- The ambiguity of “on a regular basis” determined by the CDC guidelines leaves immense room for interpretation and uncertainty of what best practice could mean. Based on these guidelines, healthcare providers are stating that there should be more specific infection control aspects in relation to stethoscopes in their clinical training both theoretically in the classroom as well as through role-modeling and practice at the bedside (Ghumman et al., 2018).
- The need to increase education is definitely necessary and CDC guidelines remain unclear on the frequency of stethoscope cleaning. There is less healthcare consensus regarding the optimal frequency of stethoscope cleaning, or what the most effective disinfectants might be (Ghumman et al., 2018).
- Studies have found staphylococcal species, gram-negative rods, and drug resistant organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA) and *Acinetobacter baumannii* on stethoscope pieces (Ghumman et al., 2018).
- One of the main reasons for poor cleaning practices is the lack of supporting evidence of stethoscope contamination and harboring bacteria.



Conclusion

- The importance of stethoscope disinfection must be implemented in hospital protocols along with hand hygiene, CAUTIs/CLABSIs and sterile technique. **Awareness of the potential transmission through stethoscopes needs to be brought more into focus throughout the United States.** Reminders, training and policies related to stethoscope cleaning into overall infection prevention efforts should be implemented in order to reduce nosocomial pathogen transmission and healthcare associated infections (Ghumman et al., 2018).
- Hospitals as well as healthcare providers should focus on educational campaigns to raise awareness of the frequency and method of stethoscope cleaning. The NHS campaign regarding hand hygiene, the “Clean your hands” campaign, was a drive for 187 NHS Trusts that was done to provide more bedside alcohol rub and posters encouraging hand washing. This campaign eventually led to an increase in alcohol rub and soap in hospitals as well as a reduction in HCAI (Ali et al., 2016). A similar type of drive as well as posters encouraging cleaning of stethoscopes with written facts would also result in a reduction in nosocomial infections.

Recommendations

- **When talking about infection, nurses should bring up the idea of stethoscopes as a vector and the need for more specific guidelines on disinfection.**
- Nurses spend their day interacting with many patients, and by implementing stethoscope disinfection between each patient use and not just “on a regular basis”, the hospital acquired infections may decrease and best practice with patient interaction will definitely rise.

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