

Observation of Stethoscope Sanitation Practices in the Emergency Department

R.S. Vasudevan¹, S. Mojaver¹, K. Chang¹, A.S. Maisel^{1,2}, R. Sedighi¹, & P. Chowdhury^{1,2}

¹University of California, San Diego, ²VA San Diego Healthcare System



UC San Diego

CA: Rajiv S. Vasudevan
Mailing Address: 7665 Palmilla Drive
San Diego, CA 92122
Email: rajivsvasudevan@gmail.com
Phone Number: 650-714-7908

ABSTRACT

Background: Stethoscopes harbor pathogens that can be transferred to patients when proper sanitary measures are not taken. Our aim was to assess medical provider stethoscope cleaning and hand hygiene in an emergency department setting.

Methods: The frequency and methods of stethoscope cleaning during and after provider-patient encounters were anonymously observed in the emergency department of the VA San Diego Healthcare System.

Results: Of 426 encounters, 115 (26.9%) involved the use of a physician-owned stethoscope. In 15/115 encounters (13.0%), the provider placed a glove over the stethoscope before patient contact. Following patient interaction, 13/115 encounters (11.3%) cleaned the stethoscope with an alcohol swab. Stethoscope hygiene with water and hand towel before patient interaction was observed in 5/115 encounters (4.3%). Hand sanitizer use or hand washing was observed in 213/426 encounters (50.0%) before patient interaction. Gloves were also used prior to patient interaction in 206/426 (48.4%) encounters. Hand sanitizer or hand washing was used in 332/426 encounters (77.9%) after patient interaction.

Conclusions: Rates of stethoscope and hand hygiene are lower than expected. Further investigation of stethoscope contamination and the associated risk of nosocomial infection are needed. Perhaps clearer guidelines on proper stethoscope cleaning would reduce this risk.

INTRODUCTION

- In 2011, ~721,000 healthcare-acquired infections (HAIs) occurred, with an estimated 75,000 dying as a result during their hospitalization.
- Stethoscopes have been known to harbor infectious bacteria, such as MRSA, VRE, and *C. Diff.*
- There has been little emphasis on investigating stethoscope contamination as a risk for HAI.
- Stethoscopes are ubiquitous in all clinical settings, so it is important to assess the current state of stethoscope hygiene.
- While many survey-based studies on stethoscope hygiene have been published, there are few studies that assess stethoscope hygiene through direct observation.

OBJECTIVE

- The purpose of this study was to observe the frequency and method of **stethoscope hygiene** among medical providers in an emergency department.
- **Hand hygiene** was also examined due to its correlation with stethoscope hygiene.

METHODS

- Using a single-blind method, researchers anonymously observed provider-patient interaction in an Emergency Department (ED) of the VA San Diego Healthcare System
- Whether the interaction was performed by a physician or a nurse was recorded
- Observation of the provider began before patient interaction, and ended once post-interaction was performed or not performed
- Data was organized in three stages: **pre-encounter**, **during-encounter**, and **post-encounter**
- **1. Pre-encounter:** Incidence of hand hygiene via hand-washing, hand sanitizer usage, and/or gloves was noted. Contact precautions and gown usage was noted.
- **2. During-encounter:** Use of a physician-owned or disposable stethoscope was noted, and whether a clean glove was used to cover the chest piece.
- **3. Post-encounter:** Hand hygiene via hand-washing or hand sanitizer was assessed. Stethoscope hygiene via use of alcohol swab, or faucet water and hand towel was assessed
- Stethoscope hygiene that occurred for less than 15 seconds was not recorded

RESULTS

- 426 provider-patient interactions were observed
- 141 interactions were performed by physicians, 285 by nurses
- 115/426 interactions involved the use of a physician-owned stethoscope
- Disposable stethoscope usage was not observed (0/426)

RESULTS CONT.

Table 1. Stethoscope Hygiene Frequency and Methods

| Stage | Method | Number of Encounters (n=115) | % |
|------------------|------------------------|------------------------------|------|
| During Encounter | Glove over Stethoscope | 15 | 13.0 |
| Post Encounter | Alcohol Swab | 13 | 11.3 |
| | Water/Hand Towel | 5 | 4.3 |

Table 2. Hand Hygiene Frequency and Methods

| Stage | Method | Number of Encounters (n=426) | % |
|----------------|---------------------|------------------------------|------|
| Pre Encounter | Hand Sanitizer | 209 | 49.1 |
| | Soap and Water | 4 | 0.9 |
| | Gloves | 206 | 48.4 |
| | Contact Precautions | 4 | 0.9 |
| | Gown | 3 | 0.7 |
| Post Encounter | Hand Sanitizer | 304 | 71.4 |
| | Soap and Water | 28 | 6.57 |

CONCLUSIONS/RECOMMENDATIONS

- Stethoscope hygiene practices are highly deficient, which presents a potential HAI risk.
- Hand Hygiene practices are lower than expected.
- Additional observational studies are needed that assess stethoscope hygiene practices in clinical settings to further elucidate the risk associated with stethoscope contamination
- Efficient methods of hand hygiene exist, but no such method exists for stethoscope hygiene. Perhaps a more convenient stethoscope hygiene system would reduce the risk of stethoscope contamination