

# Behavioral Cuing: Improving Hospital Visitor Hand Hygiene Behaviors

Lauren Sumner, BSN, RN

St. David's School of Nursing, College of Health Professions, Texas State University

## Abstract

**Background:** Visitors hand hygiene (VHH) prior to entering intensive care (ICU), telemetry, and intermediate care units is crucial in preventing spread of infections. During the influenza 2018-2019 outbreak, 50% of units' population tested positive for the influenza viruses; adding to the hospital acquired infection rates of the three units. An Agent-Based Model of infection spread approach was used with the goal of preventing infection transmission by hospital visitors in three high risk care units. Specifically, a visitor low dose educational intervention consisting of visual static and verbal cuing was undertaken to improve VHH behavior.

**Method:** A four-week, pre-post-observational design (N=635) was completed by trained observers during day and night shifts for a large tertiary hospital to determine VHH rates. Strategies of visual static cuing included educational posters and patient door signage and verbal cuing to wash and/or sanitize hands by health care workers.

**Results:** VHH adherence for the ICU was very low at baseline; out of 228 consecutive observations 20% (n=46) adherence was found. After behavioral cuing intervention, 407 observations resulted in 42% adherence to hand washing behaviors.

**Conclusion:** Low dose educational cuing strategies increased VHH behaviors. However, additional public education is needed to decrease infection spread from community sources.

## Background

- Nosocomial, or hospital acquired infections are a rising concern, not only in the intensive care unit (ICU), but across the nation's hospital systems. The World Health Organization (WHO) reports that one in twenty-five patients acquire a health care associated infection (WHO, 2009).
- Justification for this project was supported by the high number of patients (50% of the units population) admitted to the units who tested positive for either Flu A or Flu B virus during the 2018-19 flu season.
- Chandonnet (2017) created an 18% increase in VHH compliance with educational intervention and visitor interaction.
- An incidence of a hospital acquired infection increases the hospital care cost of a patient by \$10,375 and it increases the length of stay by 3.30 days (Hassan, Tuckman, Patrick, Kountz, & Kohn, 2010).

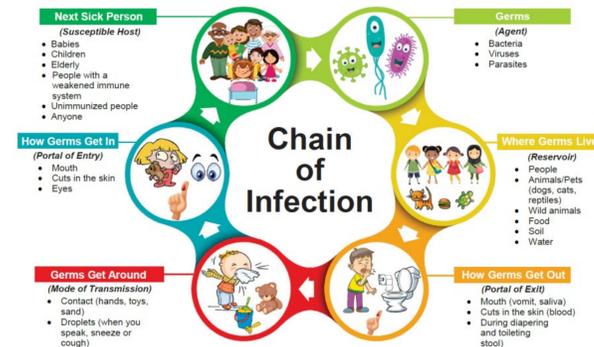
## Research Question

- Does a visitor low dose educational intervention of visual static and verbal cuing improve visitor hand hygiene (VHH) prior to entering intensive care, telemetry, and intermediate care units at a large tertiary hospital?

## Theory

### Agent-Based Model

- A preventive health Agent-Based Model was implemented to break the chain of infection from community visitors and



### Lewin's Change Theory

- Lewin's change theory was used to develop the implementation plan and project design.
- This theory consists of the unfreezing phase, change phase, and refreezing phase, which consists of increasing the driving forces that direct behavior away from the existing problem, altering behavior, and establishing that the change becomes the new standard or protocol respectively ("Lewin's Theory", n.d.).
- To improve VHH, the goal of the unfreezing phase was to increase hand hygiene as a means of reducing infection rate.
- The change phase was the intervention of static and verbal cuing of visitors, and the refreezing phase will be establishing strict hand hygiene compliance as the new standard within the units to protect patients, staff, and visitors alike.



## Methods

- A four-week, pre-post-observational design (N=635) was completed by trained observers during day and night shifts for a large tertiary hospital to determine VHH rates.
- Data collection time frames included two weeks per pre and post interventional data.
- Trained volunteers collected data through direct observation and recorded the observations on Data Tally Sheets as part of the visitors registration.
- Data Tally Sheets were divided into four-hour blocks through the twenty-four hours of the day and allowed for observation to be completed for both day and night shifts.

## Results

- Baseline observation revealed the following minimal compliance rates in hand hygiene of visitors:
  - intensive care unit: 20%
  - telemetry unit: 13%
  - intermediate care unit: 17%
- There was an increase in HVV compliance rates in all units.
- The intensive care unit having the highest rate of improvement (22%).

**Table. Visitor Hand Hygiene (VHH) Rates at Baseline (Pre-education), 1 and 2 week Post-education, Rate of Improvement, and Complete Rates**

|                        | Pre-educational intervention compliance rate | Post-educational intervention compliance rate | Compliance rate improved by             | Updated compliance rate |
|------------------------|--|---|---|-------------------------|
| Intensive Care Unit    | 20%  | Week 1: 29%<br>Week 2: 42%                    | Week 1: 9%<br>Week 2: 13%<br>Total: 22% | 42%                     |
| Telemetry Unit         | 13%  | Week 1: 17%                                   | Week 1: 4%<br>Week 2: 5%<br>Total: 10%  | 22%                     |
| Intermediate Care Unit | 17%  | Week 1: 24%                                   | Week 1: 7%<br>Week 2: 10%<br>Total: 17% | 34%                     |

## Conclusion

- The ultimate goal of healthcare is to provide interventions to improve the health status of patients, and during this process, prevent unintended complications. The educational intervention generated a 22% increase of hand hygiene compliance in the intensive care unit two weeks post intervention. Therefore, an updated compliance rate of 42% exists post intervention. The educational intervention also generated a 9% and 17% for the telemetry and intermediate care units, respectively, one week post intervention. This revealed an updated compliance rate of 22% for the telemetry unit and 34% compliance rate for the intermediate care unit post intervention.
- A review of the project goal revealed there is room for improvement to reach the goal rate of 80% compliance per unit. A contingency plan was developed to appease the restraining forces that could prevent meeting the project's goal. Recommendations for achieving the gap include educational seminars for nurses and staff on how to approach noncompliant visitors and the appropriate way to provide educational reminders of hand hygiene.
- Overall, the quality improvement project was a success and the continuation to further increase the hand hygiene rate for enhanced patient health remains a priority.

## References

- Birnback, D. J., Nevo, I., Barnes, S., Fitzpatrick, M., Rosen, L. F., Everett-Thomas, R., Arheart, K. L. (2012). Do hospital visitors wash their hands? Assessing the use of alcohol-based hand sanitizer in a hospital lobby. doi://doi-org.libproxy.txstate.edu/10.1016/j.ajic.2011.05.006
- Chandonnet, C. J. (2017). It's in your hands: An educational initiative to improve parent/family hand hygiene compliance. *Dimensions of Critical Care Nursing*, 36(6), 327-333. doi:10.1097/DCC.0000000000000268
- Hassan, M., Tuckman, H. P., Patrick, R. H., Kountz, D. S., & Kohn, J. L. (2010). Cost of hospital-acquired infection. *Hospital Topics*, 88(3), 82-89. doi:10.1080/00185868.2010.507124
- Randle, J., Arthur, A., Vaughan, N., Wharrad, H., & Windle, R. (2014). An observational study of hand hygiene adherence following the introduction of an education intervention. *Journal of Infection Prevention*, 15(4), 142-147. doi:10.1177/1757177414531057
- SWOT analysis. (n.d.). In *Oxford Dictionary online*. Retrieved from [https://en.oxforddictionaries.com/definition/swot\\_analysis](https://en.oxforddictionaries.com/definition/swot_analysis)
- World Health Organization [http://www.who.int/gpsc/5may/tools/who\\_guidelines-handhygiene\\_summary.pdf](http://www.who.int/gpsc/5may/tools/who_guidelines-handhygiene_summary.pdf)