



Hand Hygiene in Skilled Nursing Facilities

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Forward

Infection prevention and hand hygiene compliance have a unique set of challenges in Skilled Nursing Facilities (SNF) and Long Term Care (LTC). As the acuity of residents increases, the ultimate goal of reducing healthcare associated infections (HAIs) becomes increasingly challenging. For residents of the SNF or LTC facility, there are special considerations such as, for most the facility is their home. The residents are often elderly with weakened immune systems and chronic medical conditions such as diabetes, cardiac and vascular conditions. Residents often are transferred between their LTC facility and an acute care facility as their condition worsens. These factors are important to consider when developing an infection control program in a SNF or LTC facility.

In addition to the human factors of pain and suffering, and possibly death associated with an HAI, there are also the financial implications of having residents with HAIs. Non-reimbursement for preventable events such as HAIs have become common in the healthcare arena. Acute care

facilities are no longer reimbursed for readmissions within 30 days after discharge from the hospital, so they will be discerning as to where their patients are discharged, and will know the infection rates, readmission rates and reputation of the SNF or LTC facility. Looking at these ratings is also important to family members as they participate in selecting the right facility for their loved ones. LTCs and SNFs cannot afford to have residents acquiring HAIs. The easiest way to minimize HAIs is to promote a robust hand hygiene program.

This paper focuses on one of the pillars of an infection control program: Hand Hygiene. The Center for Disease Control and Prevention identify hand hygiene as the number one thing a healthcare worker can do to prevent the spread of infection. Many different aspects of hand hygiene will be discussed, including measuring hand hygiene compliance, how pathogens are spread on hands, and special considerations in the Long Term Care setting.

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Introduction

Hand hygiene has been the cornerstone of infection prevention for over 150 years.¹ Hands of health care workers (HCWs) have been implicated in infection transmission in all health care settings.² Despite efforts to increase hand hygiene practices, compliance remains poor. Smith, Carusone, and Loeb reported a hand hygiene compliance rate of 14.7% in one nursing home observational study.³ The Centers for Medicare and Medicaid Services (CMS) conduct annual inspections of skilled nursing facilities. From 2000-2009 almost 9% of all nursing homes in the United States received a deficiency citation for hand hygiene during their annual inspection.⁴ Most hand hygiene deficiencies (66.3%) were cited at a level “D”, which was an infraction that had the potential for more than minimal harm and was infrequently observed.⁴

Barriers to hand hygiene compliance include lack of access to hand washing sinks, insufficient time, skin irritation, ignorance about the problem, individual preferences, and poor habits.⁵ Low staffing levels were associated with receiving a deficiency citation for hand hygiene in nursing homes.⁴ One intervention to increase hand hygiene compliance was the availability of hand hygiene products.⁵

A multidisciplinary approach to reduce the risk of infection transmission through hand hygiene is needed. A combination of education, feedback, and availability of supplies has been successful.⁶ In a survey of nursing home staff, only about 80% thought hand hygiene was useful despite the overwhelming evidence supporting the need for better hand hygiene practices.⁷ Many other misperceptions about hand hygiene were identified in this study. There is a continued need to provide education to direct care givers regarding when and how to clean hands in a healthcare setting.

Nursing assistants have the most frequent physical contact with the resident.⁸ Focused education provided to this target group improved tested knowledge and hand hygiene compliance while reducing infection rates.⁸ The hand hygiene bundle promoted by the Institute for Healthcare Improvement (IHI) has five components: demonstrate knowledge, demonstrate competency, enable staff, monitor compliance, and provide feedback.⁹ This paper focuses on enabling the staff. The IHI recommends placing hand sanitizer dispensers near the point of care.⁹ This intervention alone was associated with an increase in health care worker hand hygiene compliance and has been repeatedly associated with increases in hand hygiene compliance, reduction in infections and antibiotic usage.⁹

Technology-Enabled Observation

Technology can accompany hand hygiene observations to make the process easier. One example is using a downloadable application to count and record hand hygiene observations and to create reports. A touch screen interface allows one to record observations, and when finished, e-mails the resulting comma-separated value file for easy analysis.¹¹ These applications can be downloaded on an iPhone® or iPad®, and the hand held device can be carried by the observer. An ongoing report of compliance rates is generated by the application, and this reduces the time spent tallying and creating a hand hygiene report.

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Hand Contamination

Contaminated hands are a vector for pathogens. CMS requires healthcare workers to perform hand hygiene when providing direct care. Healthcare workers' hands can become contaminated with common pathogens including MRSA and *Clostridium difficile* after contact with patients and their environment.^{10,11} Numerous studies have shown effective hand decontamination with proper application of alcohol-based hand sanitizer. One Swedish study demonstrated a reduction of bacteria on the hands of hospitalized patients through application of alcohol-based hand sanitizer.¹² However, new evidence illustrates the impact of resident hand hygiene in skilled nursing facilities (SNF) and proves the need for further research in this area has been recognized.¹³

Considerations in Long Term Care

The culture in long term care is to provide care in a home-like setting and to avoid institutional influences whenever possible. Relationships between residents and staff may be closer than in acute care due to time spent together, the nature of activities, and the care provided. Often residents of skilled nursing facilities require assistance with hand washing as a part of their own personal hygiene, especially before eating and after toileting. Residents with dementia, cognitive impairment, and functional decline, present further challenges

to caregivers when demonstrating hand hygiene. These barriers can be addressed through education, product availability, visual cues, and feedback, but staff must be engaged to ensure a sustained improvement.¹⁴ Schweon, Edmunds, Kirk, Rowland, and Acosta found that a facility hand hygiene program that involved resident participation resulted in improved compliance and lower infection rates.¹⁵ One component of the program was provision of hand wipes in group dining rooms and on meal trays. Residents were educated about hand hygiene and were assisted with hand hygiene when needed. Signage was also posted throughout the facility, including the recognition of a facility champion. A new champion was recognized each month and these familiar faces were publicized on a rotational basis. Resident involvement was a core component of this successful program.

Improving Compliance with Hand Hygiene

Even when commonly recognized barriers are addressed, hand hygiene compliance in long term care remains challenging. The World Health Organization (WHO) endorses patient involvement as an important component of a hand hygiene improvement program. Patients must be empowered to participate through education, skills training, and an environment that is conducive to partnership with the

with CDC and WHO guidelines. Hand hygiene techniques can be taught through live or videotaped demonstrations; interactive education using ultraviolet light and fluorescent dye can also be effective.⁹ These strategies may be adapted to train residents in hand washing skills.

Point of Care Hand Hygiene

Federal tag 441 requires that a skilled nursing facility have an infection control program that includes hand hygiene.¹⁸ When developing the hand hygiene program in a skilled nursing facility, point of care hand hygiene should be considered as an important component. Point of care hand hygiene is defined as the location where three elements come together: the resident, the healthcare worker (HCW), and the care of treatment involving contact with the resident or the resident's surroundings.¹⁶ The point of care is where the HCW is in contact with the resident for medical and nursing care purposes.¹⁷ The resident and the room environment represent the patient zone. The patient zone is defined as including the resident and some surfaces/items in his/her surroundings that are temporarily and exclusively dedicated to him/her (i.e. all inanimate surfaces touched by or in direct physical contact with the patient and touched by the HCW while providing care), including the patient's personal belongings.¹⁹

Table 1. Potential strategies to overcome barriers in hand hygiene compliance. Adapted from CDC Guideline for Hand Hygiene in Health Care Settings, 2002.¹⁷

Potential Strategies to Overcome Hand Hygiene Barriers	
Barriers	Strategies
Hand hygiene causes dry skin and irritation	Involve staff in product selection, provide hand lotion
Sinks, soap and paper towels not available	Increase availability by providing alcohol based hand rub
Hand hygiene interferes with resident-staff relationship	Foster resident empowerment in hand hygiene program
Too busy / understaffed	Provide sufficient staffing and convenient placement of hand hygiene supplies
Low perceived risk of infection	Education about risks among LTC population
Not thinking about it /forgetfulness	Visual cues, signage, awareness programs

healthcare workers.¹⁶ There are many educational tools available to enhance hand hygiene education of both residents and staff. For example, visual cueing can be accomplished through signage and strategic placement of dispensers in high-traffic areas such as entrances to the building, dining rooms, and activity rooms. Wall-mounted sanitizer dispensers must be placed at a height accessible to both residents and staff. The dispensers should be mounted away from hand washing sinks in order to increase the number of hand hygiene stations available.¹⁷ Stationary dispensers or personal containers should also be available at the point of care to facilitate compliance

Approximately 15% of all nursing homes received a deficiency citation for FTag 441, and specifically hand hygiene, was the most cited failure in CMS audits from 2000-2007.

When considering the skilled nursing facility environment, point of care hand hygiene is a logical solution that solves the barrier to compliance when hand hygiene materials are not within the caregiver's reach. Skilled nursing facilities are required to provide socialization for residents often including

group activities in communal settings.¹⁸ Occupational and physical therapy are vital for maintaining or restoring physical and mental function, but also increase the risk for person-to-person transmission. In addition there may be exposure to contaminated environmental surfaces, such as the equipment found in the physical therapy department.²⁰ Access to hand hygiene materials may be easier to use if they are located within reach of the care being provided rather than at the entrance to the room. On a typical day in a long term care facility, the goal would be to get the resident out of their room. The resident will need medications and the nurse will usually deliver them from the medication cart. Obviously the nurse will want to perform hand hygiene between each resident. Rather than having to walk away from the cart to the nearest sink or wall dispenser, it makes sense to have the necessary products for hand hygiene on the medication cart or in the nurse's pocket.

A point of care solution would be within reach for the caregiver and decreases chances of contaminated hands touching the resident.

When a resident needs care and the nursing staff performs hand hygiene at the entrance to the room, they may contaminate their hands before they touch the resident. A point of care solution would be within reach for the caregiver and decrease chances of contaminated hands touching the resident.

According to the WHO, hand hygiene efficacy depends on the environmental contamination.²¹ When shared medical devices and equipment are not cleaned and decontaminated after each use, hand hygiene cannot be expected to compensate for failure to comply with these procedures on a regular basis.¹⁹ For this reason policies for equipment and environmental cleaning must be clear and monitoring must be done to assure that they are followed. When hand hygiene is performed at the point of care it eliminates contact with the environment and reduces the chance of hand contamination.

Increased awareness of the importance of point of care as a strategy to improve hand hygiene is key to its adoption in clinical practice. In order to adopt a point of care hand hygiene model, HCWs must understand the concept of the patient zone and the relationship between residents, HCWs, and the resident's environment. Particular attention should be given to frontline caregivers, nurses, and other professionals. Residents and visitors should be included in efforts to promote hand hygiene at the point of care.²² Healthcare administrators also should be informed of the adoption of a point of care

hand hygiene program as a standard of care and its role in preventing healthcare associated infection.

The evidence illustrates that a complete hand hygiene program can deliver the type of results seen in other studies and help result in successful CMS audits by complying with Ftag 441 requirements. Ultimately the goal of a robust hand hygiene program is to reduce healthcare associated infections , and help improve the quality of life for residents, making the SNF/LTC facility a preferred facility for hospitals to refer their patient to without fear of readmission related to infections.

References

1. Semmelweis, I. (1983). In K. C. Carter (Ed.), *Etiology, concept, and prophylaxis of childbed fever* (1st ed.). Madison, WI: The University of Wisconsin Press.
2. Allegranzi, B., & Pittet, D. (2009). Role of hand hygiene in healthcare-associated infection prevention. *Journal of Hospital Infection*, 73, 305-315. doi:10.1016/j.jhin.2009.04.019
3. Smith, A, Carusone, S. C., & Loeb, M. (2008). Hand hygiene practices of health care workers in long-term care facilities. *American Journal of Infection Control*, 36(7), 492-494. doi: 10.1016/j.ajic.2007.11.003
4. Castle, N., Wagner, L., Ferguson, J., & Handler, S. (2012). Hand hygiene deficiency citations in nursing homes. *Journal of Applied Gerontology* [online], 1–27. doi: 10.1177/0733464812449903
5. Haas, J. P. & Larson, E. L. (2008). Compliance with hand hygiene. *The American Journal of Nursing*, 108(8), 40-44. Retrieved from <http://www.nursingcenter.com>
6. Helms, B., Dorval, S., St. Laurent, P, & Winter, M. (2010). Improving hand hygiene compliance: A multidisciplinary approach. *American Journal of Infection Control*, 38, 572-574. doi:10.1016/j.ajic.2009.08.020
7. Aiello, A. E., Malinis, M., Knapp, J. K., & Mody, L. (2009). The influence of knowledge, perceptions, and beliefs, on hand hygiene practices in nursing homes. *American Journal of Infection Control*, 37(2), 164–167. doi:10.1016/j.ajic.2008.04.258
8. Huang, T. T., & Wu, S. C. (2007). Evaluation of a training programme on knowledge and compliance of nurse assistants' hand hygiene in nursing homes. *The Hospital Infection Society*, 68, 164-170. doi:10.1016/j.jhin.2007.11.020
9. Institute for Healthcare Improvement. (2011). How-to guide: improving hand hygiene: A guide for improving practices among health care workers. Retrieved from <http://www.ihl.org/knowledge/Pages/Tools/HowtoGuideImprovingHandHygiene.aspx>
10. Stiefel, U., Cadnum, J. L., Eckstein, B. C., Guerrero, D. M., Tima, M. A., & Donskey, C. J. (2011). Contamination of hands with methicillin-resistant *Staphylococcus aureus* after contact with environmental surfaces and after contact with the skin of colonized patients. *Infection Control and Hospital Epidemiology* 32(2), 185-187.
11. Guerrero, D. M., Nerandzic, M. M., Jura, L. A., Jino, S., Chang, S., & Donskey, C. J. (2011). Acquisition of spores on gloved hands after contact with the skin of patients with *Clostridium difficile* infection and with environmental surfaces in their rooms. *Infection Control and Hospital Epidemiology* 40(6), 556-558.
12. Hedin, G., Blonkvist, A., Jansen, M., & Lindblom, A. (2012). Occurrence of potentially pathogenic bacteria on the hands of hospital patients before and after the introduction of patient hand disinfection. *APMIS*, 120(10), 802-807.
13. Schweon, S. J. & Kirk, J. (2011). A realistic approach towards hand hygiene for long-term care residents and healthcare personnel. *American Journal of Infection Control* 39(4), 336-338.

14. Tromp, M., Huis, A., de Guchteneire, I., van der Meer, J., van Achterberg, T., Hulscher, M., & Bleeker-Rovers, C. (2012). The short-term and long-term effectiveness of a multidisciplinary hand hygiene improvement program. *Infection Control and Hospital Epidemiology* 40(8), 732-736.
15. Schweon, S. J., Edmunds, S. L., Kirk, J., Rowland, D. Y., & Acosta, C. (2012). Effectiveness of a comprehensive hand hygiene program for reduction of infection rates in a long-term care facility. *American Journal of Infection Control* 41(4), 39-44.
16. World Health Organization. (2009). WHO guidelines on hand hygiene in health care. Geneva. Retrieved October 5, 2012 from http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf
17. Centers for Disease Control and Prevention. (2002). Guideline for hand hygiene in health care settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *Morbidity & Mortality Weekly Report*, 51 (No. RR-16).
18. Department of Health & Human Services (DHSS) Centers for Medicare & Medicaid Services (CMS). December 2, 2009. Transmittal 55. Interpretive Guidelines for Long Term Care Facilities Tag F 441. Retrieved October 8, 2012 from: <http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R51SOMA.pdf>
19. World Health Organization. (2012). Hand hygiene in outpatient and home – based care and long term care facilities. Retrieved October 5, 2012 from <http://www.who.int/gpsc/5may/en>
20. Smith, P. W., Bennett, G., Bradley, S., Drinka, P., Lautenbach, E., Marx, J., ... Stevenson, K. (2008). SHEA/APIC Guideline: Infection prevention and control in the long term care facility. *American Journal of Infection Control*, (36), 504-535. doi:10.1016/j.ajic.2008.06.001
21. Landers, T., Abusalem, S., Cody, M. B., & Bingham, S. (2012). Patient-centered hand hygiene: The next step in infection prevention. *American Journal of Infection Control*. 40(4) S11-S17.

Biographies



Jane Kirk is the Healthcare Clinical Director for GOJO Industries, and is responsible for bringing the clinical perspective to our Acute Care and Long-Term Care businesses. Prior to joining GOJO in 2008, she was Director of Infection Control at a 600+ bed hospital in Northeast Ohio where she initiated a robust hand hygiene program. Jane's experience in nursing also includes Public Health, Emergency Nursing, Critical Care, Ambulatory Nursing, and Clinical Instructor at Walsh University in Canton, Ohio. Jane holds a Master of Science in Nursing degree from Walden University and an undergraduate degree from the University of Detroit Mercy.



James Marx is the founder of Broad Street Solutions, an infection prevention consultancy. He is an adjunct faculty at the University of Phoenix in San Diego, California. A recipient of several awards, James has received the California Association of Health Facilities Nurse of the Year and the National APIC Chapter Recognition awards. He has published extensively including the APIC Guide to the Elimination of Catheter-Associated Urinary Tract Infections (CAUTIs). He is currently a board member of APIC and a member of the editorial board for the Journal of Infection Control.



Trina Zabarsky oversees the Infection Control program at the Cleveland VA Community Living Center, a 190-bed long term care rehab facility. She has been practicing infection control since 2001, and has been certified since 2003. She is also active with the Northeast Ohio chapter of APIC, the Association for Professionals in Infection Control and Epidemiology, filling the roles of Education Committee Chair, Secretary, Director and Treasurer over the past several years. She has presented research at national conferences including Shea (Society for Healthcare Epidemiology of America) and APIC, and recently published a study in the *American Journal of Infection Control* on reducing antibiotic use in long-term care. Trina coordinates the hand hygiene program for the entire Cleveland VA system, and leads the Infection Control team which covers acute care, psychiatry, long-term care and ambulatory services.



GOJO Industries, Inc., the inventors of PURELL®, is committed to improving the well-being of patients and healthcare workers. Together with infection prevention professionals, GOJO is reducing infection rates and improving patient outcomes. With the leadership brands PURELL® and PROVON®, GOJO is focused on bringing innovative hand hygiene products, smart dispensing solutions and behavior-based compliance-building programs to market that help reduce the spread of infections and improve hand hygiene compliance.