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TITLE: Microbiological colonization of healthcare workers’ mobile phones in a tertiary-level Italian intensive care unit

Citation: Intensive & Critical Care Nursing; Jun 2019; vol. 52; p. 17

Author(s): Galazzi, Alessandro; Panigada, Mauro; Broggi, Elena; Grancini, Anna; Adamini, Ileana; Binda, Filippo; Mauri, Tommaso; Pesenti, Antonio; Laquintana, Dario; Grasselli, Giacomo

Background: Careful hand hygiene of healthcare workers is recommended to reduce transmission of pathogenic microorganisms to patients. Mobile phones are commonly used during work shifts and may act as vehicles of pathogens.

Objective: To assess the colonization rate of intensive care unit healthcare workers' mobile phones before and after work shifts.

Methods: Prospective observational study conducted in an academic, tertiary-level intensive care unit. Healthcare workers (including doctors, nurses and healthcare assistants) had their mobile phones sampled for microbiology before and after work shifts. Samples were taken with a swab in a standardized modality.

Results: Fifty healthcare workers participated in the study (91% of the department staff). One hundred swabs were taken from 50 mobile phones. Forty-three healthcare workers (86%) reported a habitual use of their phones during the work shift. All phones (100%) were positive for bacteria. The most frequently isolated bacteria were Coagulase Negative Staphylococci, Bacillus sp. and Methicillin-resistant Staphylococcus aureus (97%, 56%, 17%, respectively). No patient admitted to the intensive care unit during the study period was positive for bacteria found on healthcare workers’ mobile phones. No difference in bacteria types and burden was found between the beginning and the end of work shifts.

Conclusion: Healthcare workers’ mobile phones are colonized even before the work shift and irrespective of the patients’ microbiological flora.

TITLE: The use of hand scanner to enhance hand hygiene practice among nursing students: A single-blinded feasibility study

Citation: Nurse Education Today; May 2019; vol. 76; p. 137

Author(s): Suen, Lorna KP; Wong, Joy WS; Lo, Kiki YK; Lai, Timothy KH

Abstract: Hand hygiene (HH) has been recognized as the most effective measure for reducing healthcare-associated infections in the clinical setting (Park et al., 2014). Alcohol-based hand rub (ABHR) is recommended over soap and water for routine HH practice, unless hands are visibly dirty or soiled with blood or other body fluids (Duong et al., 2017). HH compliance in the clinical setting is usually governed by the ‘Five Moments of Hand Hygiene’ recommended by the World Health Organization (WHO, 2009). However, even when HH is performed at appropriate ‘moments’, the effectiveness of the HH technique remains a concern (Lehotsky et al., 2015). Park et al. (2014) reported that appropriate hand surface coverage was observed in < 10.0% of HH procedures during hand rubbing. Nursing students who exhibit patient safety practices, such as HH, will be in a better position to grasp the essence of vigilance and perform what is expected in the clinical setting (Gantt and Webb-Corbett, 2010). Traditional teaching methods are insufficient to instil teaching concepts and maintain long-lasting improvement in HH practices (Lehotsky et al., 2015). The use of electronic devices and computer applications in university teaching has become popular nowadays (Lehotsky et al., 2016). Therefore, a feasibility study was conducted to
evaluate the effectiveness of integrating the ‘Hand-in-Scan’ device in HH teaching sessions for nurses under training. For hypothesis, the visual feedback generated by the device could reinforce the learners to pay more attention to the neglected regions, and in turn, enhance HH compliance

**TITLE:** An Education-Based Text Messaging Program to Improve Nurses’ Knowledge, Attitude, and Practice Related to Nosocomial Infections in Intensive Care Settings

**Citation:** The Journal of Continuing Education in Nursing; May 2019; vol. 50 (no. 5); p. 211

**Author(s):** Saffari, Mohsen; Sanaeinasab, Hormoz; Masoumbeigi, Hossein; Pakpour, Amir H; O’Garo, Keisha N; Koenig, Harold G

**Background:** Nosocomial infection (NI) is common in health care settings. Educational strategies such as mobile teaching methods for health care providers may help to resolve this problem. This pilot study assessed the influence of a text messaging program to improve intensive care unit nurses’ knowledge, attitude, and practice related to NI prevention.

**Method:** In this single-group experimental study, 32 nurses received an educational intervention via short text messages on their cell phones. Information on knowledge, attitude, and practice regarding NI prevention was collected using a standard scale. Preventive messages about NI were prepared and sent to participants during a 2-month trial. Results were assessed 2 weeks after the intervention, and data were analyzed by paired t-test.

**Results:** Knowledge, attitude, and practice of participants increased by 17%, 3%, and 9%, respectively, from baseline to follow up. The average score on the knowledge dimension was lower than for other components. Knowledge components such as hand hygiene, work safety, and protective equipment increased to a lesser degree from pre-to posttest, compared with other aspects (p < .05 versus p < .001).

**Conclusion:** An education-based program operating through short text messages may be a useful in-service training strategy for intensive care unit nurses. [J Contin Educ Nurs. 2019;50(5):211–217.]

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**TITLE:** Preventing surgical site infections: Facilitators and barriers to nurses’ adherence to clinical practice guidelines—A qualitative study

**Citation:** Journal of Clinical Nursing; May 2019; vol. 28 (no. 9-10); p. 1643

**Author(s):** Lin, Frances; Gillespie, Brigid M; Chaboyer, Wendy; Li, Yu; Whitelock, Karen; Morley, Nicola; Morrissey, Shirley; Frances O’Callaghan; Marshall, Andrea P

**Aims:** To identify the facilitators of and barriers to nurses’ adherence to evidence-based wound care clinical practice guidelines (CPGs) in preventing surgical site infections (SSIs) in an Australian tertiary hospital.

**Background:** Current research suggests that up to 50% of nurses are unaware of the evidence-based recommendations to prevent SSIs and that adherence to evidence-based CPGs is suboptimal. However, little is known regarding the facilitators and barriers to adherence to evidence-based CPGs.

**Design:** A qualitative study incorporating ethnographic data collection techniques.
**Methods:** Data collection included semi-structured individual interviews and focus groups (N = 20), and examination of existing hospital policy and procedure documents. Thematic analysis using inductive and deductive approaches was conducted. This manuscript adheres to the COnsolidated criteria for REporting Qualitative research (COREQ) guidelines.

**Findings:** Data analysis revealed four themes: adhering to aseptic technique, knowledge and information seeking, documenting wound care and educating and involving patients in wound care. Facilitators and barriers within each theme were identified. Facilitators included participants' active information-seeking behaviour, a clear understanding of the importance of aseptic technique, and patient participation in wound care. Barriers included participants' knowledge and skills deficits regarding application of aseptic technique principles in practice, the availability of the hospital's wound care procedure document, suboptimal wound care documentation and the timing of patient education.

**Conclusions:** There is a need to develop interventions to improve nurses' adherence to recommended CPGs including following aseptic technique principles, hand hygiene, documentation and patient education. Hospital procedure documents that outline wound care need to reflect current recommended CPGs.

**Relevance to clinical practice:** Adhering to evidence-based CPGs has been found to be effective in reducing and preventing SSIs. Our study provides an in-depth understanding of the barriers and facilitators to nurses' adherence to recommended CPGs. The findings may inform future practice improvements in wound care.

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**TITLE:** Impact of infectious exposures and outbreaks on nurse and infection preventionist workload.

**Citation:** American Journal of Infection Control; Jun 2019; vol. 47 (no. 6); p. 623-627

**Author(s):** Hessels, Amanda J.; Kelly, Ana M.; Chen, Lucy; Cohen, Bevin; Zachariah, Philip; Larson, Elaine L.

**Abstract:** Outbreak and exposure response creates a substantial workload for nurses and IPs. Interprofessional perceptions of workload vary by organism and outbreak. Quantifying burden may inform all stakeholders to respond more effectively. Staff nurse and infection preventionist (IP) workload increases in response to exposures and outbreaks. Understanding the time burden associated with responding to specific pathogens may improve resource allocation. The purpose of this study was to evaluate workload increases reported by nurses and IPs in response to common exposures and outbreaks. Surveys were distributed to nurses in a New York hospital network and to IPs who attended the 2018 Association for Professionals in Infection Control and Epidemiology annual conference or to IPs who were members of local Association for Professionals in Infection Control and Epidemiology chapters. Respondents were asked to rate their daily workload increase and to rank their most time-consuming activities in response to exposure and outbreak scenarios. A total of 150 nurses and 228 IPs responded. Among the nurses, >60-minute workload increases were reported for Clostridium difficile (76%), lice or scabies (46%), and influenza (45%). Among the IPs, >60-minute increases were reported for mumps or measles (66%), tuberculosis (64%), and C difficile (50%). Among the nurses, isolation precautions, patient and family education, and staffing changes were the most frequently reported time-consuming activities. Among the IPs, chart review, exposure list compiling, and preventive measures for exposures were the most frequently reported time-consuming activities. Organisms that are easier to treat and more difficult to spread, such as scabies or lice, can contribute substantially to nursing workload. Notably, three-quarters of the nurses and one-half of the IPs reported that C difficile adds >1 hour to their daily workload.
TITLE: Risks and benefits of using chlorhexidine gluconate in handwashing: A systematic literature review.

Citation: American Journal of Infection Control; Jun 2019; vol. 47 (no. 6); p. 704-714
Author(s): Baraldi, Marcia Maria; Gnatta, Juliana Rizzo; Padoveze, Maria Clara

Abstract: Antimicrobial soaps containing chlorhexidine gluconate (CHG) are indicated for hand hygiene (HH) in specific situations. This study aimed to identify whether the continuous use of CHG for HH affects the reduction of healthcare-associated infections (HAI), the selection of microorganisms resistant to CHG, or hands skin damage. Systematic review was performed using the protocol of the Joanna Briggs Institute, including clinical trials and observational comparative studies. Search was conducted via PubMed, Medline, CINAHL, LILACS, Embase, Cochrane Library, Scopus, Web of Science, ProQuest, Google Scholar, and gray literature. To evaluate outcomes, 3 independent reviews were conducted: HAI rates, presence of resistance genes or higher minimum inhibitory or bactericidal concentration, and damage to skin integrity. Studies showed no significant difference in HAI rates when using CHG for HH. Among 13 studies, 10 suggested an association with use of and tolerance to CHG. The use of CHG was associated with skin reaction events. Strong evidence regarding the risks and benefits of CHG for HH is still lacking. Due to potential risk of selecting mutants carrying genes for cross-resistance to CHG and antibiotics, it is advisable to reserve the use of CHG for purposes other than HH.


Citation: Journal of Pediatric Nursing; May 2019; vol. 46
Author(s): Kim, Duri; Lee, Ogcheol

Abstract: This study aimed to identify the differences in interventional effects on hand hygiene compliance (HHC) among families and visitors in pediatric wards. A total of 2787 family and non-family visitors entering through the glass sliding door of 6 pediatric wards at a university children's hospital were observed for 4 h, respectively, before and after interventions between April 27 and May 20, 2018. In the first intervention, a visual stimulus emphasized the location of the hand sanitizer. In the second intervention, an additional auditory stimulus transmitted a cue through a motion sensor speaker. During the preliminary observation, the HHC rates of family and non-family visitors were 0.0% and 1.5%, respectively; after the visual stimulus, they were 0.6% and 5.4%, and after the audio-visual stimulus, 1.8% and 8.2%. There was a significant increase in the overall HHC with the visual (OR, 5.22; 95% CI, 1.76-20.90) and audio-visual (OR, 8.67; 95% CI, 3.08-33.70) stimuli (Fisher's exact test, p <.05). The HHC of family and non-family visitors entering pediatric wards was very low and the audio-visual stimulus was found to be more effective than was the visual stimulus alone. To reduce healthcare-associated infection, pediatric wards must actively implement effective interventions. Using audio-visual stimulation to increase HHC among visitors will provide advantages. Follow-up research should examine the current state of HHC among visitors in various locations and conditions. • Visual and audio-visual effects on hand hygiene compliance (HHC) were studied. • HHC of families and non-family visitors entering the pediatric ward was very low. • HHC increased significantly when visual stimulation is provided. • HHC increased more when audio-visual stimulation is provided. • More active infection control education is needed for families and non-family visitors.
Abstract: Sterile Processing Departments (SPD) play a critical role in patient safety by proper sterilization of surgical instruments. Infection Preventionists (IPs) are often responsible for overseeing Infection Control (IC) standards for SPD, but frequently lack training in sterile processing that can create challenges. In 2015 we developed a quality improvement project improving IP knowledge of SPD processes and compliance with IC measures. An audit tool was created utilizing observations, staff responses to IC questions and documentation review. To gain familiarity with SPD processes and improve audits, IPs attended weekly SPD meetings, Skills Fairs, APIC webinars and professional conferences. Audits were developed from nationally recommended practices, done bimonthly by IC personnel and reviewed quarterly with SPD leadership. IPs provided education for staff when gaps were identified. Implementation of SPD audits occurred concurrently with other OR quality improvement projects to facilitate improved instrument reprocessing Average overall audit scores increased in the first year from 67% in 2015 to 84% in 2016 (p < 0.001 by Chi squared test). Although overall average audit scores remained consistent since 2016, scores for questions related to employee knowledge of cleaning technique increased from 59% in 2015 to 90% in 2018 (p < 0.001). We observed a correlation between increasing SPD audit scores and decline in bioburden events from a yearly average of 3.29 events per 1000 procedures in 2015 to 1.15 events per 1000 procedures in 2018 (p < 0.001). By attending SPD conferences, staff meetings, and skills fairs, IPs developed an audit tool to improve SPD oversight. Frequent auditing and education improved audit scores and correlated with an improvement in SPD function, as measured by decreased bioburden events. This project demonstrates how collaboration between the IP and SPD departments can lead to improved compliance and patient safety.
performed to identify risk factors and clinical syndromes that could potentially lead to a HO-SA bacteremia. We identified 130 inpatients with HO-SA bacteremia, of which 63 (48%) was HO-MRSA. The most common sources identified for patients with these bacteremias were pneumonia (27%), vascular devices (20%), and skin/soft tissue infections (23%). There was no significant difference in the distribution of these sources comparing HO-MRSA with HO-MSSA. A total of 42 (32%) patients were identified to have signs and symptoms consistent with infection on admission but did not have a blood culture collected on or after day 4 of admission. Of these 42 patients, 33 (79%) were admitted from the ED and 20 (48%) are immunosuppressed patients. Pneumonia was the most common cause of HO-SA bacteremia. Strategies to prevent HO-MRSA should include processes to prevent hospital acquired pneumonia with prompt blood culture collection on admission in patients presenting with compatible signs and symptoms.


Citation: American Journal of Infection Control; Jun 2019; vol. 47
Author(s): Zirges, Chris; Eichelberger, Jenna

Abstract: Healthcare-associated infections (HAIs) are a significant cause of morbidity and mortality. Studies suggest that environmental contamination plays a role in the transmission of pathogens. Several common pathogens, including Clostridium difficile (C. difficile), Methicillin-resistant Staphylococcus aureus (MRSA), and Vancomycin-resistant Enterococcus (VRE), are able to survive for prolonged periods of time in the environment, and infections have been found to be associated with surface contamination in hospitals. A Midwest healthcare system implemented a new position, the Infection Prevention Technician (IP Technician), to support the hospital's Infection Preventionist by performing environment-of-care (EOC) rounds. From July 2017-June 2018, the IP Technician at a 350-bed hospital performed focused EOC rounds. Findings were documented at the unit level and reported daily to department leadership. The report included a photo if applicable. Active surveillance culture data was monitored to measure rates of transmissions. An educational tool was included that led to knowledge and collaboration between a multidisciplinary team. Findings decreased by an average of 46% over the 12-month period. Pre-intervention, the C. difficile standardized infection ratio (SIR) was 0.670. One year post-intervention, the SIR was 0.574. MRSA bloodstream infections continued to be sporadic with many months at zero. The MRSA transmission rate decreased from 0.48 (per 1000 patient days) to 0.35 post-intervention. During the same period, the VRE transmission rate decreased from 0.56 to 0.52 respectively. Sustainment of infection control practices requires constant rounding, education, and communication to staff. The IP Technician role has proven to be a success with sustainment of our prevention efforts, mainly providing the additional support needed to implement focused EOC rounding. The daily report has proven to be a valuable tool as the healthcare team became more knowledgeable of EOC concerns. Collectively, these efforts have mitigated risks that may lead to HAIs.

TITLE: High compliance scores may be hiding hospitals' dirty secrets.

Citation: Nursing Standard; May 2019; vol. 34 (no. 5); p. 56-58
Author(s): Trueland, Jennifer
Abstract: The article discusses the NHS Improvement's national hand hygiene (HH) policy that aims to improve patient safety against infections in healthcare settings in England. Topics mentioned include the different strategies utilized by healthcare providers in performing HH audits including the use of trained auditors, the five moments of HH according to the World Health Organization including the moment before touching a patient, and the misconceptions pertaining to dirty hands and hand washing.

TITLE: Hand hygiene in hospitals: anatomy of a revolution.

Citation: Journal of Hospital Infection; Apr 2019; vol. 101 (no. 4); p. 383-392

Author(s): Vermeil, T.; Peters, A.; Kilpatrick, C.; Pires, D.; Allegranzi, B.; Pittet, D.

Abstract: Healthcare-associated infections (HAIs) affect hundreds of millions of individuals worldwide. Performing hand hygiene is widely accepted as a key strategy of infection prevention and control (IPC) to prevent HAIs, as healthcare workers' contaminated hands are the vehicle most often implicated in the cross-transmission of pathogens in health care. Over the last 20 years, a paradigm shift has occurred in hand hygiene: the change from handwashing with soap and water to using alcohol-based hand rubs. In order to put this revolution into context and understand how such a change was able to be implemented across so many different cultures and geographic regions, it is useful to understand how the idea of hygiene in general, and hand hygiene specifically, developed. This paper aims to examine how ideas about hygiene and hand hygiene evolved from ancient to modern times, from a ubiquitous but local set of ideas to a global phenomenon. It reviews historical landmarks from the first known documented recipe for soap by the Babylon civilization to the discovery of chlorine, and significant contributions by pioneers such as Antoine Germain Labarraque, Alexander Gordon, Oliver Wendell Holmes, Ignaz Philip Semmelweis, Louis Pasteur and Joseph Lister. It recalls that handwashing with soap and water appeared in guidelines to prevent HAIs in the 1980s; describes why alcohol-based hand rub replaced this as the central tool for action within a multi-modal improvement strategy; and looks at how the World Health Organization and other committed stakeholders, governments and dedicated IPC staff are championing hand hygiene globally.

Sources Used

The following databases are searched on a regular basis in the development of this bulletin: British Nursing Index, Cinahl & Medline

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