Infection Control
Current Awareness Bulletin
March 2018

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Title: Intubation-associated pneumonia: An integrative review

Citation: Intensive & Critical Care Nursing; Feb 2018; vol. 44; p. 45

Author(s): Sousa, Ana Sabrina; Ferrito, Cândida; Paiva, José Artur

Abstract: Several European countries are committed to addressing this phenomenon through infection control and microbial resistance programmes; however there is a much to be done in order to minimise its effects. The lack of consensus in the literature regarding diagnosis criteria, risk factors and incidence rates is a limitation of this study.

Title: Are antimicrobial stewardship programs effective strategies for preventing antibiotic resistance? A systematic review.

Citation: American journal of infection control; Feb 2018

Author(s): Bertollo, Leandro G; Lutkemeyer, Diego S; Levin, Anna S

Background: Antimicrobial stewardship programs (ASPs) have been proposed as a solution for the global burden of antibiotic resistance, despite the lack of evidence on the subject.

Objective: To analyze the role of ASPs in reducing bacterial resistance to antibiotics in hospital settings.

Data sources: A review in PubMed, Scopus, LILACS, and SciELO databases was performed. The period analyzed was January 1, 2012-January 4, 2017.

Eligibility criteria: Studies that related ASPs to bacterial resistance.

Date extraction: All studies that did not focus on ASPs were removed. Antifungal and antiviral programs were excluded.

Results: Only 8 studies had quasi-experimental designs, and none were controlled trials. ASP strategies and microorganism-antibiotic pairs evaluated varied widely. Seven studies were classified as presenting clearly positive results, 3 had limited positive results, 7 had doubtful results, 4 had negative results, and 5 had noninterpretable results. The implementation of new infection control practices occurred in 7 studies.

Limitations: There are yet few studies on this matter, and most of them have inadequate study designs. Great heterogeneity between study features was detrimental to drawing evidence-based conclusions.

Conclusions: There is no solid evidence that ASPs are effective in reducing antibiotic resistance in hospital settings. We uphold the need for more studies with appropriate study designs, standardized ASP interventions targeting common microorganism-antibiotic pairs, and avoiding simultaneous implementation of infection control practices.

Title: An integrative review exploring the perceptions of patients and healthcare professionals towards patient involvement in promoting hand hygiene compliance in the hospital setting.

Citation: Journal of clinical nursing; Feb 2018
Author(s): Alzyood, Mamdooh; Jackson, Debra; Brooke, Debra; Aveyard, Helen

Objectives: To review patients’ and healthcare professionals' perceptions of patient involvement in promoting hand hygiene compliance in the hospital setting.

Background: Initiatives continue to emphasise the importance of involving patients in their safety at the point of care. A patient-centred care approach aims to empower patients to become active members of the healthcare team. However, understanding the perceptions of patients and healthcare professionals of patient involvement in promoting hand hygiene compliance among healthcare professionals has yet to be fully explored.

Design: Integrative literature review.

Methods: A five-stage review process informed by Whittemore and Knafl's methodology was conducted. MEDLINE and CINAHL were searched for papers published between January 2009 and July 2017. Data were extracted manually, organised using NVivo 11, and analysed using thematic analysis.

Results: From an identified 240 papers, 19 papers were included in this review. Thematic analysis revealed two main themes with three related sub-themes. Patients were willing to remind healthcare professionals (especially nurses) to wash their hands, healthcare professionals perception toward patients involvement varied from one study to another. However, an overall positive attitude toward patient involvement was related to how patients asked and how healthcare professionals responded to being asked.

Conclusion: There is limited evidence regarding patients actual intention to ask healthcare professionals to wash their hands, and some evidence that patients are reluctant to do so. Further research is required to understand this area thoroughly, including which situations patients would feel more empowered to speak up.

Relevance to clinical practice: Simple messages promoting patient involvement may lead to complex reactions in both patients and healthcare professionals. It is unclear yet how patients and staff react to such messages in clinical practice. There is a need for a deeper understanding of how they can work together to support harm free care.

Title: An investigation of radiographers' mobile phone use and the success of an awareness campaign at reducing the nosocomial infection risks.

Citation: Radiography (London, England: 1995); Feb 2018; vol. 24 (no. 1); p. 57-63

Author(s): Crofton, C C; Foley, S J

Objective: Mobile phone use by healthcare workers (HCWs) is widespread. Studies have shown that HCW's mobile phones can harbour pathogens associated with nosocomial infections. This study investigated whether an awareness campaign will result in an improvement in radiographers' phone and hand hygiene practices.

Methods: Radiographers working in the general department of two university hospitals were invited to participate. One hospital was assigned as the experiment hospital and the other as a control. In the experiment hospital, adenosine triphosphate (ATP) testing of each participant's mobile phone determined the cleanliness of its surface. A corresponding survey was completed to determine their current practices and level of awareness. Subsequently, an infection control poster campaign took place for a one-month period, followed by re-testing. In the control hospital, the
ATP testing and survey were also completed before and after a one-month period, but without a poster campaign.

**Results:** Radiographers were generally unaware of the infection risks associated with mobile phone use with 44% of all participants never cleaning their phone. The campaign successfully improved phone hygiene frequency and method in the experiment hospital. However, it did not improve hand hygiene practices and actual phone cleanliness (mean ATP count reductions of 10% (experiment hospital) and 20% (control)). The ATP testing as a less direct form of intervention showed similar levels of success in comparison to the poster campaign.

**Conclusions:** A multifaceted educational approach is likely to be most effective in raising awareness and changing radiographers' phone and hand hygiene practices.

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**Title:** Strategies to promote infection prevention and control in acute care hospitals with the help of infection control link nurses: A systematic literature review.

**Citation:** American journal of infection control; Feb 2018; vol. 46 (no. 2); p. 207-216

**Author(s):** Peter, Daniel; Meng, Michael; Kugler, Christiane; Mattner, Frauke

**Background:** Infection control link nurses (ICLN) are important backup personnel for the prevention and control of infections in hospitals. To identify facilitators and barriers for the implementation of and long-term collaboration with ICLNs.

**Methods:** We conducted a systematic literature review, following the preferred reporting items for systematic reviews and meta-analyses guidelines. Inclusion criteria were defined as description of de novo implementation of an ICLN system, strengthening of an existing ICLN system, or analysis of an ICLN system.

**Results:** In 10 publications, facilitators and barriers were identified for mode of selection of ICLN candidates, characteristics and responsibilities of ICLNs, composition of a training curriculum, educational strategies, and external influencing factors. Experienced nurses with an interest in infection control seemed appropriate candidates. The importance of psychological skills in addition to technical knowledge was emphasized. A clear definition of responsibilities was important. Viable tasks for ICLNs included surveillance and teaching activities and the implementation of prevention measures. Ongoing teaching was superior to a single course. Management support was pivotal for success.

**Conclusion:** Research on ICLNs is scarce. The potential to decrease health care-associated infections with the help of ICLNs has been demonstrated. The training in psychological skills in addition to technical knowledge deserves more attention.

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**Title:** Clostridium difficile infection in hospitalized patients with antibiotic-associated diarrhea: A systematic review and meta-analysis.

**Citation:** Anaerobe; Jan 2018; vol. 50; p. 32-37

**Author(s):** Nasiri, Mohammad Javad; Goudarzi, Mehd; Hajikhani, Bahareh; Ghazi, Mona; Goudarzi, Hossein; Pouriran, Ramin

**Abstract:** Clostridium difficile is the main infectious cause of antibiotic associated diarrhea (AAD). The objective of this study was to determine the frequency of C. difficile AAD in hospitalized...
patients. We searched MEDLINE (Pubmed), Embase, Web of Science and Cochrane library for subject headings and text words related to C. difficile AAD. Studies that investigated the prevalence or frequency of C. difficile AAD in health care settings were considered eligible. Using a random-effects model, data obtained from the identified studies were combined. Of the 2464 citations identified, twenty studies (5496 patients) met the inclusion criteria of the present study. Pooling all studies, the frequency of C. difficile among AAD patients was 20.0% (95% CI 13.0-28.0). The most frequently used antibiotics in health care settings were the following: Clindamycin, fluoroquinolones and cephalosporins. The current systematic review demonstrated the significant presence of C. difficile among patients with AAD. The limited and rational use of broad spectrum antibiotics and implementation of standard infection control measures are recommended to reduce the risk of C. difficile associated infections in hospitalized patients.

Title: Use of a verbal electronic audio reminder with a patient hand hygiene bundle to increase independent patient hand hygiene practices of older adults in an acute care setting.

Citation: American journal of infection control; Mar 2018
Author(s): Knighton, Shanina C; Dolansky, Mary; Donskey, Curtis; Warner, Camille; Rai, Herleen; Higgins, Patricia A

Background: We hypothesized that the addition of a novel verbal electronic audio reminder to an educational patient hand hygiene bundle would increase performance of self-managed patient hand hygiene.

Methods: We conducted a 2-group comparative effectiveness study randomly assigning participants to patient hand hygiene bundle 1 (n = 41), which included a video, a handout, and a personalized verbal electronic audio reminder (EAR) that prompted hand cleansing at 3 meal times, or patient hand hygiene bundle 2 (n = 34), which included the identical video and handout, but not the EAR. The primary outcome was alcohol-based hand sanitizer use based on weighing bottles of hand sanitizer.

Results: Participants that received the EAR averaged significantly more use of hand sanitizer product over the 3 days of the study (mean ± SD, 29.97 ± 17.13 g) than participants with no EAR (mean ± SD, 10.88 ± 9.27 g; t73 = 5.822; P ≤ .001).

Conclusions: The addition of a novel verbal EAR to a patient hand hygiene bundle resulted in a significant increase in patient hand hygiene performance. Our results suggest that simple audio technology can be used to improve patient self-management of hand hygiene. Future research is needed to determine if the technology can be used to promote other healthy behaviors, reduce infections, and improve patient-centered care without increasing the workload of health care workers.

Title: Pilot study of digital tools to support multimodal hand hygiene in a clinical setting.

Citation: American journal of infection control; Mar 2018; vol. 46 (no. 3); p. 261-265
Author(s): Thirkell, Gary; Chambers, Joanne; Gilbart, Wayne; Thornhill, Kerrill; Arbogast, James; Lacey, Gerard
Background: Digital tools for hand hygiene do not share data, limiting their potential to support multimodal programs. The Christie NHS Foundation Trust, United Kingdom, worked with GOJO (in the United States), MEG (in Ireland), and SureWash (in Ireland) to integrate their systems and pilot their combined use in a clinical setting.

Methods: A 28-bed medical oncology unit piloted the system for 5 weeks. Live data from the tools were combined to create a novel combined risk status metric that was displayed publicly and via a management Web site.

Results: The combined risk status reduced over the pilot period. However, larger and longer duration studies are required to reach statistical significance. Staff and especially patient reaction was positive in that 70% of the hand hygiene training events were by patients. The digital tools did not negatively impact clinical workflow and received positive engagement from staff and patients. The combined risk status did not change significantly over the short pilot period because there was also no specific hand hygiene improvement campaign underway at the time of the pilot study.

Conclusions: The results indicate that integrated digital tools can provide both rich data and novel tools that both measure impact and provide feedback to support the implementation of multimodal hand hygiene campaigns, reducing the need for significant additional personnel resources.

Title: Differences in psychosocial determinants of hand hygiene between health care professional groups: Insights from a mixed-methods analysis.

Citation: American journal of infection control; Mar 2018; vol. 46 (no. 3); p. 253-260

Author(s): Ibrahim, Muhamad Alif Bin; Chow, Chengzi; Poh, Bee Fong; Ang, Brenda; Chow, Angela

Background: Good hand hygiene (HH) prevents health care-associated infections. We compared psychosocial and organizational factors associated with HH compliance and perceived need for improvement among physicians, nurses, and allied health professionals (AHPs).

Methods: We conducted a mixed-methods study in a 1,600-bed adult tertiary-care hospital in Singapore. Seven focus group discussions were conducted and data were analyzed using thematic analysis. The subsequent cross-sectional survey involved 1,064 staff members. Principal components analysis was performed to derive the latent factor structure that was applied in multivariable analyses.

Results: All staff members acknowledged that HH was an integral part of their work, but were noncompliant due to competing priorities. Physicians were forgetful but appreciated reminders. Nurses were intrinsically motivated for HH. After adjusting for gender, staff category, seniority, and dermatitis history, having positive knowledge-attitudes-behaviors (odds ratio [OR], 1.44; 95% confidence interval [CI], 1.23-1.69), personal motivators-enablers (OR, 1.60; 95% CI, 1.38-1.86), and emotional motivators (OR, 1.62; 95% CI 1.40-1.88) were positively associated with good HH compliance. Women (OR, 3.91; 95% CI, 1.37-11.11), seniors (OR, 2.88; 95% CI, 1.08-7.68), nurses (OR, 4.05; 95% CI, 1.51-10.87), and staff with personal motivators-enablers for HH (OR, 1.60; 95% CI, 1.08-2.37) were more likely to perceive a need for improvement.

Conclusions: Factors influencing self-reported HH differed between health care professional groups. Group-specific interventions are needed to improve compliance.
Sources Used
The following databases are searched on a regular basis in the development of this bulletin:

British Nursing Index
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