

Infection Prevention and Control

Current Awareness Bulletin

March 2024

Our Current Awareness Bulletins provide details of recently published articles in a given subject. They are a quick and easy way to keep up to date.

Please contact the Academy Library to request any articles:

 ruh-tr.library@nhs.net

 01225 82 4897/4898



Carry out basic searches using the Knowledge and Library Hub.



Sign up to NHS OpenAthens to access our subscriptions.



Contact us to receive our bulletins via email each month.



Get personalised alerts via our KnowledgeShare service.

ruh.nhs.uk/library

1. Effectiveness of a hand hygiene training intervention in improving knowledge and compliance rate among healthcare workers in a respiratory disease hospital

Authors: Chakma, Samar Kishor;Hossen, Saheen;Rakib, Tareq Mahmud;Hoque, Samsul;Islam, Rashadul;Biswas, Tapos;Islam, Ziaul and Islam, M. M.

Publication Date: 2024

Journal: Heliyon 10(5), pp. e27286

Abstract: Background: Practicing hand hygiene (HH) is a crucial element of infection control, with healthcare workers (HCWs) playing a vital role in preventing the spread of infection. However, inadequate knowledge and non-compliance to HH protocols pose significant challenges in healthcare settings. This study aimed to evaluate the effectiveness of an HH training intervention in enhancing knowledge and staff compliance within a respiratory disease hospital.; Method: A pre-and post-training study was conducted among the healthcare workers in a respiratory disease treatment facility. The intervention comprised a series of 3-hour training sessions conducted over five days, focusing on the World Health Organization's (WHO) recommended guideline "Your Five Moments For Hand Hygiene." These sessions covered proper HH techniques and underscored the repercussions of inadequate compliance. Educational materials related to HH were displayed in prominent locations throughout the facility. The knowledge levels and compliance rate were assessed before and after the intervention.; Result: The intervention significantly improved HH knowledge levels and compliance rates among the participants. Marking a significant improvement, the compliance rate of HH protocols increased from 66.0% to 88.3% during the pre-to post-training period, with a concurrent increase in the mean knowledge score from 68.6% to 78.9%.; Conclusion: This study underscores the potential of training and education in elevating HH compliance and knowledge among healthcare workers. The findings advocate that healthcare facilities routinely incorporate such interventions into their infection control programs, ultimately improving patient and healthcare worker safety.; Competing Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. (© 2024 The Authors.)

2. Implementation of a surgical site infection prevention bundle in gynecologic oncology patients: An enhanced recovery after surgery initiative

Authors: Ejaredar, Maede;Ruzycki, Shannon M.;Glazer, Tali Sara;Trudeau, Pat;Jim, Brent;Nelson, Gregg and Cameron, Anna

Publication Date: 2024

Journal: Gynecologic Oncology 185, pp. 173-179

Abstract: Objective: To evaluate the clinical outcomes pre- and post-implementation of an evidence-informed surgical site infection prevention bundle (SSIPB) in gynecologic oncology patients within an Enhanced Recovery After Surgery (ERAS) care pathway.; Methods: Patients undergoing laparotomy for a gynecologic oncology surgery between January-June 2017 (pre-SSIPB) and between January 2018-December 2020 (post-SSIPB) were compared using t-tests and chi-square. Patient characteristics, surgical factors, and ERAS process measures and outcomes were abstracted from the ERAS® Interactive Audit System (EIAS). The primary outcomes were incidence of surgical site infections (SSI) during post-operative hospital admission and at 30-days post-surgery. Secondary outcomes included total postoperative infections, length of stay, and any surgical complications. Multivariate models were used to adjust for potential confounding factors.; Results: Patient and surgical characteristics were similar in the pre- and post-implementation periods. Evaluation of implementation suggested that preoperative and intraoperative components of the intervention were most consistently used. Infectious complications within 30 days of surgery decreased from 42.1% to 24.4% after implementation of the SSIPB ($p < 0.001$), including reductions in wound infections (17.0% to 10.8%, $p = 0.02$), urinary tract infections (UTI) (12.7% to 4.5%, $p < 0.001$), and intra-abdominal abscesses (5.4% to 2.5%, $p = 0.05$). These reductions were associated with a decrease in median length of stay from 3

to 2 days ($p = 0.001$). In multivariate analysis, these SSI reductions remained statistically significant after adjustment for potential confounders.; Conclusion: Implementation of SSIPB was associated with a reduction in SSIs and infectious complications, as well as a shorter length of stay in gynecologic oncology patients.; Competing Interests: Declaration of competing interest The authors have no conflicts of interest related to this manuscript. (Copyright © 2024 The Authors. Published by Elsevier Inc. All rights reserved.)

3. What did we learn about changing behaviour during the COVID-19 pandemic? A systematic review of interventions to change hand hygiene and mask use behaviour

Authors: Hotopf, India;Majorin, Fiona and White, Sian

Publication Date: 2024

Journal: International Journal of Hygiene and Environmental Health 257, pp. 114309

Abstract: Background: behaviour change interventions were central in the COVID-19 response and are vital for strengthening pandemic preparedness and resilience. To be effective, interventions must target specific behavioural determinants, but determinants are complex and multifaceted and there is a gap in robust, theory driven evidence on which behavioural determinants are most effective at changing mask usage and hand hygiene behaviour.; Purpose: to map available evidence on the types of hand hygiene and mask usage behaviour change interventions conducted during the COVID-19 pandemic and assess their effectiveness, feasibility and acceptability.; Methods: we conducted a systematic review, searching four peer-reviewed databases for terms related to COVID-19, targeted behaviours (hand hygiene and mask usage) and interventions. Eligible studies were those which focused on adults or children in naturalistic, non-experimental settings; reported on an intervention designed to change hand hygiene and or mask usage to reduce COVID-19 transmission; provided clear outcome measures, including through self-report, proxy indicators or observation. Studies were excluded if they were purely qualitative, opinion pieces or based on secondary data alone; focused on health workers; measured intended rather than enacted behaviour; were conducted in laboratory or health care-based settings; involved infants; were published before the 11th of March 2020 (when COVID-19 was declared a pandemic) and published in a language other than English. There were no geographical limits set. Descriptive summaries were produced and the quality of evidence and reporting was evaluated. Studies were divided into three sub-groups according to the behaviour targeted and behaviour change techniques (BCTs) were mapped. Effect estimates were summarised and the relationship between BCTs and effect was explored. Feasibility and acceptability was summarised where reported. Due to the heterogeneity of studies included, meta-analysis could not be conducted.; Findings: sixteen citations met the criteria, with sub-studies (two citations including multiple studies) totalling nineteen eligible studies. The majority were randomised controlled trials which targeted hand hygiene only and were conducted in high income nations, with none conducted in crisis settings. Due to the constraints of the pandemic, many interventions were delivered online. The quality of studies was low, with the majority demonstrating a medium risk of bias (Likert scale: low, medium, high). Whilst acceptability and feasibility was good, both were rarely evaluated. 'Natural consequences' was the most commonly used BCT group. Fourteen of the studies elicited positive or potentially positive effects in at least one intervention arm and/or targeted behaviour. Effective interventions typically targeted multiple individual BCTs, including 'Instruction on how to perform a behaviour', 'Information about health consequences', and group 'Reward and threat', through repeated engagement over a sustained period of time.; Conclusion: there is a substantial knowledge gap, particularly in low resource and crisis settings, and available evidence is of low quality. We must address these gaps to enable evidence-based practice and strengthen pandemic preparedness and resilience. Future research should include another systematic review which includes grey literature and different languages, as well as more robust evaluations which use implementation research to explore the impact of multiple BCTs in low resource and crisis settings. Evaluations should include assessments of acceptability, practicability, affordability and equity.; Competing Interests: Declaration of competing interest We have no conflicts of interest to declare. (Copyright © 2023. Published by Elsevier GmbH.)

4. Infection prevention and control policy implementation for CPE: a cross-sectional national survey of healthcare workers reveals knowledge gaps and suboptimal practices

Authors: Kearney, A.;Humphreys, H. and Fitzgerald-Hughes, D.

Publication Date: 2024

Journal: The Journal of Hospital Infection 145, pp. 148-154

Abstract: Background: In 2017, Ireland pioneered a unique response to the worsening epidemiology of carbapenemase-producing Enterobacterales (CPE), declaring a national public health emergency. Subsequently, CPE mitigation guidelines and policies were implemented in acute hospitals, focused on patient screening and outbreak management, often by healthcare workers (HCWs) with limited background in infection prevention and control (IPC). CPE risks from sinks and drains remain inadequately controlled.; Aims: To compare CPE awareness, perceptions of the role of the environment in CPE transmission, and disposal practices of liquid waste from clinical handwashing sinks between IPC HCWs and non-IPC HCWs in Ireland.; Methods: Between December 2022 and March 2023, HCWs employed in acute hospitals in Ireland between 2017 and 2022 were invited to participate anonymously in a 30-question digital survey.; Findings: Responses (N=283) were received across several clinical disciplines. In total, 21.6% of respondents were working or had previously worked in IPC roles, 84.1% of whom reported no IPC-related learning needs. In comparison with non-IPC HCWs, more IPC HCWs perceived a risk of pathogen transmission from clean water plumbing (68.9% vs 39.2%; $P<0.001$) and waste/drainage plumbing (81.2% vs 43.7%; $P<0.001$). Among nursing and medical staff, only 5.6% of IPC HCWs used clinical handwashing sinks for disposal of liquid waste, compared with 60% of non-IPC HCWs ($P<0.001$). In comparison with non-IPC HCWs, a greater proportion of IPC HCWs reported that they had witnessed colleagues routinely discarding liquid waste (including nutritional products, antimicrobials and patient body fluids) via clinical handwashing sinks (88.9% vs 77.9%)
CONCLUSIONS: Although there is general awareness of the role of the built environment in pathogen transmission, including CPE, familiarity with sink/water-related transmission is greater among IPC HCWs. There may be opportunities to improve disposal practices for liquid waste through education targeting non-IPC HCWs. (Copyright © 2024 The Authors. Published by Elsevier Ltd.. All rights reserved.)

5. Enhancing competency in infection prevention and control: Identifying priorities for clinical nurse educational needs

Authors: Lee, Soon-Hee and Yang, In-Suk

Publication Date: 2024

Journal: Nurse Education Today 134, pp. N.PAG

Abstract: Healthcare-associated infections (HAIs) have become a significant concern globally, posing risks to patients and imposing social and economic burdens. Competency in infection prevention and control (IPC) practices is essential for nurses to effectively reduce the risk of transmission. However, there is a lack of research on educational needs for competency in IPC practices. This study aimed to assess and prioritize educational needs for the development of educational content focused on the IPC practices of clinical nurses. A descriptive cross-sectional design was utilized. This study was conducted at six general hospitals located in five urban regions in South Korea, each with 100 to 300 beds. A total of 226 nurses were recruited as participants for this study. Data were collected from June to July 2021. A total of 226 nurses participated in this study. After examining the perceived importance and current performance of attributes related to IPC, educational needs were identified by paired-sample t-test, importance-performance analysis, Borich's needs analysis, and the Locus for Focus model. Items related to IPC were found to have lower performance than importance, highlighting the need for education. Educational needs were the highest for items in the "IPC practices according to microorganisms" category, such as MRSA, VRE, antimicrobial-resistant organisms, Clostridium difficile, scabies, and AIDS. Items in the "isolation precautions" category, including standard precautions,

transmission-based precautions, management of isolation rooms, and wearing PPE, also demonstrated high priority in terms of educational needs. The findings suggest the need for training programs for clinical nurses with a focus on specific areas for improving IPC competency. The development and implementation of training modules tailored to the educational needs of clinical nurses may enhance their skills, knowledge, and attitudes, ultimately resulting in improved performance. • A comprehensive approach was used to prioritize educational needs for IPC competency. • A gap between importance and performance in IPC practices highlighted areas for improvement. • The highest priority was assigned to items related to "IPC practices according to microorganisms". • The second-highest priority was given to items related to "isolation precautions". • Nursing training for IPC practices according to educational needs could improve IPC competency.

6. Comparing multiple infection control measures in a nursing home setting: a simulation study

Authors: Li, Haomin; Sewell, Daniel K.; Herman, Ted; Pemmeraju, Sriram V.; Segre, Alberto M.; Miller, Aaron C. and Polgreen, Philip M.

Publication Date: 2024

Journal: Infection Control and Hospital Epidemiology , pp. 1-8

Abstract: Objective: Compare the effectiveness of multiple mitigation measures designed to protect nursing home residents from infectious disease outbreaks.; Design: Agent-based simulation study.; Setting: Simulation environment of a small nursing home.; Methods: We collected temporally detailed and spatially fine-grained location information from nursing home healthcare workers (HCWs) using sensor motes. We used these data to power an agent-based simulation of a COVID-19 outbreak using realistic time-varying estimates of infectivity and diagnostic sensitivity. Under varying community prevalence and transmissibility, we compared the mitigating effects of (i) regular screening and isolation, (ii) inter-resident contact restrictions, (iii) reduced HCW presenteeism, and (iv) modified HCW scheduling.; Results: Across all configurations tested, screening every other day and isolating positive cases decreased the attack rate by an average of 27% to 0.501 on average, while contact restrictions decreased the attack rate by an average of 35%, resulting in an attack rate of only 0.240, approximately half that of screening/isolation. Combining both interventions impressively produced an attack rate of only 0.029. Halving the observed presenteeism rate led to an 18% decrease in the attack rate, but if combined with screening every 6 days, the effect of reducing presenteeism was negligible. Altering work schedules had negligible effects on the attack rate.; Conclusions: Universal contact restrictions are highly effective for protecting vulnerable nursing home residents, yet adversely affect physical and mental health. In high transmission and/or high community prevalence situations, restricting inter-resident contact to groups of 4 was effective and made highly effective when paired with weekly testing.

7. Nursing students led simulations to improve healthcare workers' hand hygiene compliance

Authors: Livshiz-Riven, Ilana; Hurvitz, Nancy; Nativ, Ronit; Borer, Abraham; Gushansky, Alex; Eilig, Dynai; Kopitman, Alina and Ziv-Baran, Tomer

Publication Date: 2024

Journal: Contemporary Nurse , pp. 1-14

Abstract: Background: Hand hygiene compliance (HHC) is recognised as a major factor in the prevention of healthcare-associated infections. Healthcare workers (HCWs) compliance is still suboptimal. Simulation as an educational strategy may contribute to improved performance.; Objective: This study aimed to assess the effect of simulation interventions led by nursing students on HCWs' HHC.; Method: A prospective quasi-experimental design with before and after intervention measurements was implemented in an 1150-bed tertiary hospital. Four consecutive periods, measuring before and after HHC, were examined in four hospital divisions. For each division, unique simulation

activities were developed and led by nursing students, educators, and hospital leaders. Sixty seven students and 286 healthcare workers, along with two nurse educators, participated in the simulation sessions. HHC of all HCWs in the divisions was assessed by hospital infection control personnel.; Results: Hospital HHC rose across the four periods in all four divisions during this study. In three out of four periods and divisions, HHC increased significantly more in the simulation intervention groups compared to the overall hospital improvement.; Conclusion: Student-led simulation for HCWs is an additional effective method to improve HHC. Nursing managers should consider joining forces with nursing educators to enable students to become agents of change in healthcare settings and encourage further collaboration.

8. Electronic hand hygiene monitoring tools for implementation of optimal hand sanitising adherence in neonatal intensive care

Authors: Minotti, Chiara;Aghlmandi, Soheila and Bielicki, Julia Anna

Publication Date: 2024

Journal: The Journal of Hospital Infection

Abstract: We report on the implementation of electronic hand hygiene monitoring with visual nudges for positive reinforcement of staff hand hygiene adherence in a Swiss third-level neonatal intensive care unit. The weekly average hand hygiene level, though suboptimal, increased from 21% to 41%, being highest with an active nudging function. (Copyright © 2024 The Healthcare Infection Society. Published by Elsevier Ltd. All rights reserved.)

9. Human Factors Contributing to Infection Prevention in Outpatient Hemodialysis Centers: A Mixed Methods Study

Authors: Parker, Sarah Henrickson;Jesso, Matthew N.;Wolf, Laurie D.;Leigh, Kerry Avondet;Booth, Stephanie;Gualandi, Nicole;Garrick, Renee E.;Kliger, Alan S. and Patel, Priti R.

Publication Date: 2024

Journal: American Journal of Kidney Diseases : The Official Journal of the National Kidney Foundation

Abstract: Rationale & Objective: Infection prevention efforts in dialysis centers can avert patient morbidity and mortality but are challenging to implement. The objective of this study was to better understand how the design of the work system might contribute to infection prevention in outpatient dialysis centers.; Study Design: Mixed methods, observational study.; Setting & Participants: Six dialysis facilities across the United States were visited by a multidisciplinary team over 8 months.; Analytical Approach: At each facility, structured macroergonomic observations were undertaken by a multidisciplinary team using the SEIPS 1.0 model. Ethnographic observations were collected about staff encounters with dialysis patients including the content of staff conversations. Selective and axial coding were used for qualitative analysis and quantitative data were reported using descriptive statistics.; Results: Organizational and sociotechnical barriers and facilitators to infection prevention in the outpatient dialysis setting were identified. Features related to human performance, (e.g., alarms, interruptions, and task stacking), work system design (e.g., physical space, scheduling, leadership, and culture), and extrinsic factors (e.g., patient-related characteristics) were identified.; Limitations: This was an exploratory evaluation. A small sample size.; Conclusion: This study used a systematic macroergonomic approach in multiple outpatient dialysis facilities to identify infection prevention barriers and facilitators related to human performance. Several features common across facilities were identified that may influence infection prevention in outpatient care and warrant further exploration. (Copyright © 2024. Published by Elsevier Inc.)

Disclaimer:

The results of your literature search are based on the request that you made, and consist of a list of references, some with abstracts. Royal United Hospital Bath Healthcare Library will endeavour to use the best, most appropriate and most recent sources available to it, but accepts no liability for the information retrieved, which is subject to the content and accuracy of databases, and the limitations of the search process. The library assumes no liability for the interpretation or application of these results, which are not intended to provide advice or recommendations on patient care.