

Infection Control Current Awareness Bulletin

March 2021

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Title: Implementation of infection control measures to prevent healthcare-associated transmission of severe acute respiratory coronavirus virus 2 (SARS-CoV-2).

Citation: Infection Control & Hospital Epidemiology; Feb 2021; vol. 42 (no. 2); p. 229-232

Author(s): Lepak ; Shirley, Daniel K.; Buys, Ashley; Stevens, Linda; Safdar, Nasia

Abstract: The article focuses on the implementation of infection control measures to prevent healthcare-associated transmission of severe acute respiratory coronavirus virus 2. Topics discussed describe the infection control measures implemented and the relationship with SARS-CoV-2 test results in hospitalized patients; and the reasons for efficient person-to-person transmission are multifactorial, including high-level viral shedding in the upper respiratory tract.

Title: Efficacy of surgical masks or cloth masks in the prevention of viral transmission: Systematic review, meta-analysis, and proposal for future trial.

Citation: Journal of evidence-based medicine; Feb 2021

Author(s): Nanda, Akriti; Hung, Ivan; Kwong, Ava; Man, Vivian Chi-Mei; Roy, Pankaj; Davies, Lucy; Douek, Michael

Objective: Recommendations for widespread use of face mask, including suggested type, should reflect the current published evidence and concurrently be studied. This review evaluates the preclinical and clinical evidence on use of cloth and surgical face masks in SARS-CoV-2 transmission and proposes a trial to gather further evidence.

Methods: PubMed, Embase, and the Cochrane Library were searched. Studies of SARS-CoV-2 and face masks and randomized controlled trials (RCTs) of $n \geq 50$ for other respiratory illnesses were included.

Results: Fourteen studies were included in this study. One preclinical and 1 observational cohort clinical study found significant benefit of masks in limiting SARS-CoV-2 transmission. Eleven RCTs in a meta-analysis studying other respiratory illnesses found no significant benefit of masks (\pm hand hygiene) for influenza-like-illness symptoms nor laboratory confirmed viruses. One RCT found a significant benefit of surgical masks compared with cloth masks.

Conclusion: There is limited available preclinical and clinical evidence for face mask benefit in SARS-CoV-2. RCT evidence for other respiratory viral illnesses shows no significant benefit of masks in limiting transmission but is of poor quality and not SARS-CoV-2 specific. There is an urgent need for evidence from randomized controlled trials to investigate the efficacy of surgical and cloth masks on transmission of SARS-CoV-2 and user reported outcomes such as comfort and compliance.

Title: A SARS-CoV-2 Cluster in an Acute Care Hospital.

Citation: Annals of internal medicine; Feb 2021

Author(s): Klompas, Michael; Baker, Meghan A; Rhee, Chanu; Tucker, Robert; Fiumara, Karen; Griesbach, Diane; Bennett-Rizzo, Carin; Salmasian, Hojjat; Wang, Rui; Wheeler, Noah; Gallagher, Glen R; Lang, Andrew S; Fink, Timelia; Baez, Stephanie; Smole, Sandra; Madoff, Larry; Goralnick, Eric; Resnick, Andrew; Pearson, Madelyn; Britton, Kathryn; Sinclair, Julia; Morris, Charles A

Background: Little is known about clusters of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in acute care hospitals.

Objective: To describe the detection, mitigation, and analysis of a large cluster of SARS-CoV-2 infections in an acute care hospital with mature infection control policies.

Design: Descriptive study.

Setting: Brigham and Women's Hospital, Boston, Massachusetts.

Participants: Patients and staff with cluster-related SARS-CoV-2 infections.

Intervention: Close contacts of infected patients and staff were identified and tested every 3 days, patients on affected units were preemptively isolated and repeatedly tested, affected units were cleaned, room ventilation was measured, and specimens were sent for whole-genome sequencing. A case-control study was done to compare clinical interactions, personal protective equipment use, and breakroom and workroom practices in SARS-CoV-2-positive versus negative staff.

Measurements: Description of the cluster, mitigation activities, and risk factor analysis.

Results: Fourteen patients and 38 staff members were included in the cluster per whole-genome sequencing and epidemiologic associations. The index case was a symptomatic patient in whom isolation was discontinued after 2 negative results on nasopharyngeal polymerase chain reaction testing. The patient subsequently infected multiple roommates and staff, who then infected others. Seven of 52 (13%) secondary infections were detected only on second or subsequent tests. Eight of 9 (89%) patients who shared rooms with potentially contagious patients became infected. Potential contributing factors included high viral loads, nebulization, and positive pressure in the index patient's room. Risk factors for transmission to staff included presence during nebulization, caring for patients with dyspnea or cough, lack of eye protection, at least 15 minutes of exposure to case patients, and interactions with SARS-CoV-2-positive staff in clinical areas. Whole-genome sequencing confirmed that 2 staff members were infected despite wearing surgical masks and eye protection.

Limitation: Findings may not be generalizable.

Conclusion: SARS-CoV-2 clusters can occur in hospitals despite robust infection control policies. Insights from this cluster may inform additional measures to protect patients and staff.

Primary funding source: None.

Title: SARS-CoV-2 nosocomial infection: Real-world results of environmental surface testing from a large tertiary cancer center.

Citation: Cancer; Feb 2021

Author(s): Shah, Mansi R; Jan, Imraan; Johns, Jeremy; Singh, Kuldip; Kumar, Pallavi; Belarmino, Norma; Saggiomo, Kara J; Hayes, Carolyn; Washington, Kimyatta; Toppmeyer, Deborah L; Haffty, Bruce G; Libutti, Steven K; Evens, Andrew M

Background: Despite consensus guidelines, concern about severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission has dissuaded patients with cancer from seeking medical care. Studies have shown that contaminated surfaces may contain viable virus for up to 72 hours in laboratory settings. The purpose of this study was to investigate contamination of SARS-CoV-2 on commonly used environmental surfaces in a tertiary cancer care center.

Methods: This study evaluated the incidence of SARS-CoV-2 viral RNA in high-touch outpatient and inpatient cancer center spaces. Surfaces were tested over a 2-week period

after patient or staff exposure but before scheduled disinfection services according to the World Health Organization protocols for coronavirus disease 2019 (COVID-19) surface sampling. Samples were analyzed via reverse transcriptase-polymerase chain reaction for the presence of SARS-CoV-2 RNA.

Results: Two hundred four environmental samples were obtained from inpatient and outpatient oncology clinics and infusion suites, and they were categorized as 1) public areas, 2) staff areas, or 3) medical equipment. One hundred thirty surfaces from 2 outpatient hematology and oncology clinics and 36 surfaces from an inpatient leukemia/lymphoma/chimeric antigen receptor T-cell unit were examined, and all 166 samples were negative for SARS-CoV-2. One of 38 samples (2.6%) from COVID-19+ inpatient units was positive. Altogether, the positive test rate for SARS-CoV-2 RNA across all surfaces was 0.5% (1 of 204).

Conclusions: This prospective, systematic quality assurance investigation of real-world environmental surfaces, performed in inpatient and outpatient hematology/oncology units, revealed overall negligible detection of SARS-CoV-2 RNA when strict mitigation strategies against COVID-19 transmission were instituted.

Lay summary: The potential risks of nosocomial infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) have deterred patients with cancer from seeking timely care despite consensus guidelines. This study has found negligible rates of environmental contamination with SARS-CoV-2 across a multitude of commonly used surfaces in outpatient and inpatient hematology/oncology settings with adherence to strict infection control protocols.

Title: *Pseudomonas aeruginosa* infection in augmented care: the molecular ecology and transmission dynamics in four large UK hospitals.

Citation: The Journal of hospital infection; Feb 2021

Author(s): Halstead, Fenella D; Quick, Joshua; Niebel, Marc O; Garvey, Mark; Cumley, Nicola; Smith, Robin; Neal, Timothy; Roberts, Paul; Hardy, Katie; Shabir, Sahida; Walker, James T; Hawkey, Peter; Loman, Nicholas J

Background: *Pseudomonas aeruginosa* is a common opportunistic pathogen and molecular typing in outbreaks has linked patient acquisition to contaminated hospital water systems.

Aim: To elucidate the role of *P. aeruginosa* transmission rates in non-outbreak augmented care setting in the UK.

Methods: Over a 16-week period, all water outlets in augmented care units of four hospitals were sampled for *P. aeruginosa* and clinical isolates were collected. Outlet and clinical *P. aeruginosa* isolates underwent whole genome sequencing (WGS), which with epidemiological data identified acquisition from water as definite (level 1), probable (level 2), possible (level 3), and no evidence (level 4).

Findings: Outlets were positive in each hospital on all three occasions, W (16%), X (2.5%), Y (0.9%) and Z (2%), and there were 51 persistently positive outlets in total. WGS identified likely transmission (at levels 1, 2 and 3) from outlets to patients in three hospitals for *P. aeruginosa* positive patients: W (63%), X (54.5%) and Z (26%). According to the criteria (intimate epidemiological link and no phylogenetic distance), approximately 5% of patients in the study 'definitely' acquired their *P. aeruginosa* from their water outlets in ICU. This study found extensive evidence of transmission from the outlet to the patients particularly in the newest hospital (W), which had the highest rate of positive outlets.

Conclusions: The overall findings suggest that water outlets are the most likely source of *P. aeruginosa* nosocomial infections in some settings, and that widespread introduction of control measures would have a substantial impact on infections.

Title: In Search of Patient Zero: Visual Analytics of Pathogen Transmission Pathways in Hospitals.

Citation: IEEE transactions on visualization and computer graphics; Feb 2021; vol. 27 (no. 2); p. 711-721

Author(s): Baumgartl, T; Petzold, M; Wunderlich, M; Hohn, M; Archambault, D; Lieser, M; Dalpke, A; Scheithauer, S; Marschollek, M; Eichel, V M; Mutters, N T; Consortium, Highmed; Landesberger, T Von

Abstract: Pathogen outbreaks (i.e., outbreaks of bacteria and viruses) in hospitals can cause high mortality rates and increase costs for hospitals significantly. An outbreak is generally noticed when the number of infected patients rises above an endemic level or the usual prevalence of a pathogen in a defined population. Reconstructing transmission pathways back to the source of an outbreak - the patient zero or index patient - requires the analysis of microbiological data and patient contacts. This is often manually completed by infection control experts. We present a novel visual analytics approach to support the analysis of transmission pathways, patient contacts, the progression of the outbreak, and patient timelines during hospitalization. Infection control experts applied our solution to a real outbreak of *Klebsiella pneumoniae* in a large German hospital. Using our system, our experts were able to scale the analysis of transmission pathways to longer time intervals (i.e., several years of data instead of days) and across a larger number of wards. Also, the system is able to reduce the analysis time from days to hours. In our final study, feedback from twenty-five experts from seven German hospitals provides evidence that our solution brings significant benefits for analyzing outbreaks.

Title: Future scenarios for the COVID-19 pandemic

Citation: The Lancet; Feb 2021; vol. 397 (no. 10276); p. 777

Author(s): Skegg, David; Gluckman, Peter; Boulton, Geoffrey; Hackmann, Heide; Salim S Abdool Karim; Piot, Peter; Woopen, Christiane

Abstract: Vaccines alone, unless they achieve high population coverage, offer long-lasting protection, and are effective in preventing both SARS-CoV-2 transmission and COVID-19, will not end the pandemic or allow the world to return to "business as usual". [...]high levels of global vaccine-mediated protection are achieved across the world, it could be catastrophic if measures such as mask wearing, physical distancing, and hand hygiene are relaxed prematurely.⁴ Countries, communities, and individuals must be prepared to cope in the longer-term with both the demands and the consequences of living with such essential containment and prevention measures. The COVAX initiative is just an initial step towards addressing vaccine equity and global coordination for vaccine access, especially for lower income countries.¹² At the other extreme is a pessimistic scenario, in which SARS-CoV-2 variants emerge repeatedly with the ability to escape vaccine immunity, so that only high-income countries can respond by rapidly manufacturing adapted vaccines for multiple rounds of population reimmunisation in pursuit of national control while the rest of the world struggles with repeated waves and vaccines that are not sufficiently effective against newly circulating viral variants. CW is a member of the working group on pandemics and crisis of

the Group of Chief Science Advisors to the European Commission and the European Group on Ethics in Science and New Technologies and has received grants from the German Federal Ministry of Research and Education, the German Federal Ministry for Family and Seniors, the Bertelsmann Foundation, the German Federal Ministry for Health, the German Federal Ministry of Justice and for Consumer Protection, personal fees from Agaplesion gAG as a member of supervisory board, and personal fees from several companies and organisations all unrelated to this Comment.

Title: Inactivation of SARS-CoV-2 by commercially available alcohol-based hand sanitizers.

Citation: American Journal of Infection Control; Mar 2021; vol. 49 (no. 3); p. 401-402

Author(s): Leslie ; Zhou, S. Steve; Macinga, David R.

Abstract:• Alcohol solutions and WHO alcohol-based liquid sanitizer formulations have demonstrated efficacy against the COVID-19 associated SARS-CoV-2 virus in previous publications. • Two formulated alcohol-based hand sanitizers, a gel and a foam each containing 70% ethanol, yielded complete reduction of SARS-CoV-2, with >3 log₁₀ reductions, in suspension testing with a 30 second contact time. • Further research is warranted on the efficacy of alcohol-based hand sanitizers against coronaviruses on the hands and understanding the impacts of hand hygiene on transmission of COVID-19. Alcohol-based hand sanitizers are being recommended as an infection prevention measure for COVID-19. Recently published data indicates that ethanol effectively inactivates the SARS-CoV-2 virus, but there is a lack of data for formulated hand sanitizer products currently used in U.S. healthcare and general settings. This study demonstrates a commercially available foam and gel alcohol-based hand sanitizer are effective in inactivating SARS-CoV-2 in suspension.

Title: Hand Hygiene Compliance at Critical Points of Care.

Citation: Clinical Infectious Diseases; Mar 2021; vol. 72 (no. 5); p. 814-820

Author(s): Chang ; Reisinger, Heather Schacht; Schweizer, Marin L; Jones, ichael; Chrischilles, Elizabeth; Chorazy, Margaret; Huskins, Charles; Herwaldt, Loreen

Background: Most articles on hand hygiene report either overall compliance or compliance with specific hand hygiene moments. These moments vary in the level of risk to patients if healthcare workers (HCWs) are noncompliant. We assessed how task type affected HCWs' hand hygiene compliance.

Methods: We linked consecutive tasks individual HCWs performed during the Strategies to Reduce Transmission of Antimicrobial Resistant Bacteria in Intensive Care Units (STAR*ICU) study into care sequences and identified task pairs—2 consecutive tasks and the intervening hand hygiene opportunity. We defined tasks as critical and/or contaminating. We determined the odds of critical and contaminating tasks occurring, and the odds of hand hygiene compliance using logistic regression for transition with a random effect adjusting for isolation precautions, glove use, HCW type, and compliance at prior opportunities.

Results: Healthcare workers were less likely to do hand hygiene before critical tasks than before other tasks (adjusted odds ratio [aOR], 0.97 [95% confidence interval {CI}, .95–.98]) and more likely to do hand hygiene after contaminating tasks than after other tasks (aOR, 1.12 [95% CI, 1.10–1.13]). Nurses were more likely to perform both critical and

contaminating tasks, but nurses' hand hygiene compliance was better than physicians' (aOR, 0.94 [95% CI, .91–.97]) and other HCWs' compliance (aOR, 0.87 [95% CI, .87–.94]).

Conclusions: Healthcare workers were more likely to do hand hygiene after contaminating tasks than before critical tasks, suggesting that habits and a feeling of disgust may influence hand hygiene compliance. This information could be incorporated into interventions to improve hand hygiene practices, particularly before critical tasks and after contaminating tasks.

Title: Influence of the Internet of Things management system on hand hygiene compliance in an emergency intensive care unit.

Citation: The Journal of hospital infection; Mar 2021; vol. 109 ; p. 101-106

Author(s): Xu, N; Liu, C; Feng, Y; Li, F; Meng, X; Lv, Q; Lan, C

Background: Hand hygiene is a critical strategy for infection prevention in all healthcare settings. Automated electronic monitoring systems are expected to improve hand hygiene performance.

Aim: To investigate the impact of the Internet of Things (IoT) management system on hand hygiene compliance among medical staff in an emergency intensive care unit (EICU).

Methods: This retrospective observational study was conducted between July 1st, 2017 and February 28th, 2018 in a 19-bed EICU. The changes in hand hygiene compliance among 54 members of medical staff and the incidence of hospital infections were compared, counted, and analysed before and after implementing the IoT management system in the EICU that was initiated on November 1st, 2017.

Findings: After the application of the IoT management system, the hand hygiene compliance rates among the members of the medical staff before (29.5% (3347/11,338) vs 57.9% (4690/8094), $P < 0.001$) and after (59.9% (9915/16,556) vs 73.8% (17,194/23 286), $P 0.05$).

Conclusion: The IoT management system significantly improved hand hygiene compliance among medical staff, except cleaners, in the EICU of one provincial hospital; however, the rates of nosocomial infection did not significantly decrease. The quality of hand hygiene implementation needs to be improved.

Title: Knowledge, socio-cognitive perceptions and the practice of hand hygiene and social distancing during the COVID-19 pandemic: a cross-sectional study of UK university students.

Citation: BMC public health; Mar 2021; vol. 21 (no. 1); p. 426

Author(s): Barrett, Christine; Cheung, Kei Long

Background: During the first wave of the COVID-19 pandemic, social distancing and hand hygiene have been the primary means of reducing transmission in the absence of effective treatments or vaccines, but understanding of their determinants is limited. This study aimed to investigate knowledge and socio-cognitive perceptions, and their associations with such protective behaviours, in UK university students.

Methods: A cross-sectional online survey of 293 students was undertaken on 13 May 2020. Survey questions addressed demographics, knowledge of the disease and effectiveness of the protective measures, risk perception, socio-cognitive perceptions (e.g. attitude, social

support, and self-efficacy), habit, time factors and trust, as well as the hand hygiene and social distancing behaviours. Multiple linear regression was used to identify the strongest associations of potential determinants with behaviour.

Results: Participants reported high levels of social distancing with 88.9% answering "Mostly" or "Always" for every activity, but only 42.0% reporting the same for all hand hygiene activities. Knowledge of the effectiveness of each activity in preventing transmission was high, with 90.7% and 93.5% respectively identifying at least 7 of 8 hand hygiene or 9 of 10 social distancing activities correctly. Habit ($\beta = 0.39$, $p = 0.001$) and time factors ($\beta = 0.28$, $p = 0.001$) were the greatest contributors to unique variance in hand hygiene behaviour, followed by ethnicity ($\beta = -0.13$, $p = 0.014$) and risk perception ($\beta = 0.13$, $p = 0.016$). For social distancing behaviour, the determinants were self-efficacy ($\beta = 0.25$, $p < 0.001$), perceived advantages ($\beta = 0.15$, $p = 0.022$), trust in policy ($\beta = 0.14$, $p = 0.026$) and gender ($\beta = -0.14$, $p = 0.016$). Regression models explained 40% hand hygiene and 25% social distancing variance.

Conclusions: This study indicated that communications about effectiveness of hand hygiene and social distancing behaviours had been effective in terms of knowledge acquisition. However, in the light of likely second waves of COVID-19, attention to maintaining social distancing behaviour and improving hand hygiene behaviour may need to address more difficult areas of changing habits, overcoming time factors and building trust, as well as interventions to increase self-efficacy and address risk perception concerns.

Title: Infection Control Behavior at Home During the COVID-19 Pandemic: Observational Study of a Web-Based Behavioral Intervention (Germ Defence).

Citation: Journal of medical Internet research; Feb 2021; vol. 23 (no. 2); p. e22197

Author(s): Ainsworth, Ben; Miller, Sascha; Denison-Day, James; Stuart, Beth; Groot, Julia; Rice, Cathy; Bostock, Jennifer; Hu, Xiao-Yang; Morton, Katherine; Towler, Lauren; Moore, Michael; Willcox, Merlin; Chadborn, Tim; Gold, Natalie; Amlôt, Richard; Little, Paul; Yardley, Lucy

Background: To control the COVID-19 pandemic, people should adopt protective behaviors at home (self-isolation, social distancing, putting shopping and packages aside, wearing face coverings, cleaning and disinfecting, and handwashing). There is currently limited support to help individuals conduct these behaviors.

Objective: This study aims to report current household infection control behaviors in the United Kingdom and examine how they might be improved.

Methods: This was a pragmatic cross-sectional observational study of anonymous participant data from Germ Defence between May 6-24, 2020. Germ Defence is an open-access fully automated website providing behavioral advice for infection control within households. A total of 28,285 users sought advice from four website pathways based on household status (advice to protect themselves generally, to protect others if the user was showing symptoms, to protect themselves if household members were showing symptoms, and to protect a household member who is at high risk). Users reported current infection control behaviors within the home and intentions to change these behaviors.

Results: Current behaviors varied across all infection control measures but were between sometimes (face covering: mean 1.61, SD 1.19; social distancing: mean 2.40, SD 1.22; isolating: mean 2.78, SD 1.29; putting packages and shopping aside: mean 2.75, SD 1.55) and quite often (cleaning and disinfecting: mean 3.17, SD 1.18), except for handwashing (very often: mean 4.00, SD 1.03). Behaviors were similar regardless of the website pathway used. After using Germ Defence, users recorded intentions to improve infection control

behavior across all website pathways and for all behaviors (overall average infection control score mean difference 0.30, 95% CI 0.29-0.31).

Conclusions: Self-reported infection control behaviors other than handwashing are lower than is optimal for infection prevention, although handwashing is much higher. Advice using behavior change techniques in Germ Defence led to intentions to improve these behaviors. Promoting Germ Defence within national and local public health and primary care guidance could reduce COVID-19 transmission.

Title: Increased occurrence of hand eczema in young children following the Danish hand hygiene recommendations during the COVID-19 pandemic.

Citation: Contact dermatitis; Mar 2021; vol. 84 (no. 3); p. 144-152

Author(s): Simonsen, Anne B; Ruge, Iben F; Quaade, Anna S; Johansen, Jeanne D; Thyssen, Jacob P; Zachariae, Claus

Background: During the first wave of the COVID-19 pandemic of Spring 2020, Denmark was one of the first countries to introduce lockdown measures, including closing of all daycare centers. Following the reopening of daycare centers, Danish Health Authorities implemented a mandatory intensive hand hygiene regimen.

Objectives: To examine the occurrence and point prevalence of hand eczema as a consequence of more intensive hand hygiene among Danish children attending daycare.

Methods: The heads of 1667 daycare centers in Denmark were contacted and asked to forward a link to a questionnaire to parents of the children attending the daycare center.

Results: Among 6858 children, 12.1% had hand eczema before reopening of daycare centers, whereas 38.3% reported hand eczema after the children returned to daycare. Of the children who never had hand eczema, 28.6% developed hand eczema after returning to daycare. The risk of hand eczema was significantly associated with atopic dermatitis, female gender, higher age, and frequency of handwashing.

Conclusion: Following the implemented hygiene regimen, a high proportion of young children rapidly developed hand eczema. Well-established prophylactic skin care might have spared a proportion of the children from developing hand eczema.

Title: Nationwide multicenter questionnaire surveys on countermeasures against antimicrobial resistance and infections in hospitals.

Citation: BMC infectious diseases; Feb 2021; vol. 21 (no. 1); p. 234

Author(s): Shin, Jung-Ho; Mizuno, Seiko; Okuno, Takuya; Itoshima, Hisashi; Sasaki, Noriko; Kunisawa, Susumu; Kaku, Mitsuo; Yoshida, Makiko; Gu, Yoshiaki; Morii, Daiichi; Shibayama, Keigo; Ohmagari, Norio; Imanaka, Yuichi

Background: The goals of the National Action Plan on Antimicrobial Resistance (AMR) of Japan include "implementing appropriate infection prevention and control" and "appropriate use of antimicrobials," which are relevant to healthcare facilities. Specifically, linking efforts between existing infection control teams and antimicrobial stewardship programs was suggested to be important. Previous studies reported that human resources, such as full-time equivalents of infection control practitioners, were related to improvements in antimicrobial stewardship.

Methods: We posted questionnaires to all teaching hospitals (n = 1017) regarding hospital countermeasures against AMR and infections. To evaluate changes over time, surveys were conducted twice (1st survey: Nov 2016, 2nd survey: Feb 2018). A latent transition analysis (LTA) was performed to identify latent statuses, which refer to underlying subgroups of hospitals, and effects of the number of members in infection control teams per bed on being in the better statuses.

Results: The number of valid responses was 678 (response rate, 66.7%) for the 1st survey and 559 (55.0%) for the 2nd survey. More than 99% of participating hospitals had infection control teams, with differences in activity among hospitals. Roughly 70% had their own intervention criteria for antibiotics therapies, whereas only about 60 and 50% had criteria established for the use of anti-methicillin-resistant *Staphylococcus aureus* antibiotics and broad-spectrum antibiotics, respectively. Only 50 and 40% of hospitals conducted surveillance of catheter-associated urinary tract infections and ventilator-associated pneumonia, respectively. Less than 50% of hospitals used maximal barrier precautions for central line catheter insertion. The LTA identified five latent statuses. The membership probability of the most favorable status in the 2nd study period was slightly increased from the 1st study period (23.6 to 25.3%). However, the increase in the least favorable status was higher (26.3 to 31.8%). Results of the LTA did not support a relationship between increasing the number of infection control practitioners per bed, which is reportedly related to improvements in antimicrobial stewardship, and being in more favorable latent statuses.

Conclusions: Our results suggest the need for more comprehensive antimicrobial stewardship programs and increased surveillance activities for healthcare-associated infections to improve antimicrobial stewardship and infection control in hospitals.

Title: Addition of a sixth step in hand hygiene protocol: Moisturization.

Citation: Journal of the American Academy of Dermatology; Mar 2021; vol. 84 (no. 3); p. e171

Author(s): Jindal, Rashmi; Pandhi, Deepika

Title: ICU preparedness in pandemics: lessons learned from the coronavirus disease-2019 outbreak.

Citation: Current opinion in pulmonary medicine; Mar 2021; vol. 27 (no. 2); p. 73-78

Author(s): Harris, Gavin; Adalja, Amesh

Purpose of review: The worldwide SARS-CoV-2 pandemic has taken a heavy toll on ICUs worldwide. This review expounds on lessons learned for ICU preparedness during the pandemic and for future mass casualty events.

Recent findings: In the 21st century, there have already been several outbreaks of infectious diseases that have led to mass casualties creating ICU strain, providing multiple opportunities for hospitals and hospital systems to prepare their ICUs for future events. Unfortunately, the sheer scale and rapidity of the SARS-CoV-2 pandemic led to overwhelming strain on every aspect of ICU disaster preparedness. Yet, by analyzing experiences of hospitals throughout the first 7 months of the current pandemic in the areas of infection control, equipment preparedness, staffing strategies, ICU spatial logistics as well as acute and postacute treatment, various important lessons have already emerged that will prove critical for successful future ICU preparedness.

Summary: Preemptive planning, beginning with the early identification of staffing resources, supply chains and alternative equipment sources, coupled with strong infection control practices that also provide for the flexibility for evolving evidence is of utmost importance. However, there is no single approach that can be applied to every health system.

Title: Development and Validation of an Age-Appropriate Website for Children Requiring Clean Intermittent Catheterization.

Citation: Rehabilitation nursing : the official journal of the Association of Rehabilitation Nurses; 2021; vol. 46 (no. 2); p. 65-72

Author(s): de Avila, Marla Andréia Garcia; Rabello, Thaís; de Araújo, Maria Paula Bortoleti; Amaro, João Luiz; Zornoff, Denise de Cássia Moreira; Ferreira, Ana Silvia Sartori Barraviera Seabra; de Oliveira, Ananda Stefani

Purpose: This study describes the development and validation of an age-appropriate website for preschool children who require clean intermittent catheterization (CIC).

Methods: An age-appropriate website was developed at an academic medical center in Brazil and included child-friendly characters, details of the urinary system anatomy and physiology, hand-washing, and the CIC procedure. Content was validated by physicians, nurses, and health informatics professionals. Face validity was assessed by parents.

Findings: Content and face validity indices were 0.94 and 0.92, respectively.

Conclusions: The free website (www.doutorbexiga.com.br) was successfully validated and considered suitable and user-friendly for the health education of children requiring CIC.

Clinical relevance: Physicians and nurses can use the website as a model for developing similar materials. The website can be a resource for health professionals and parents of children with spinal cord injury or other neurological disorders to encourage children to learn about CIC through animated educational materials.

Title: COVID-19 guidelines for pregnant women and new mothers: A systematic evidence review.

Citation: International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics; Mar 2021

Author(s): DiLorenzo, Madeline A; O'Connor, Sarah; Ezekwesili, Caroline; Sampath, Spoorthi; Zhao, Molly; Yarrington, Christina; Pierre, Cassandra

Background: Nearly a year after COVID-19 was initially detected, guidance for pregnant and new mothers remains varied.

Objective: The goal of this systematic review is to summarize recommendations for three areas of maternal and fetal care - breastfeeding, post-partum social distancing, and decontamination.

Search strategy: We searched PubMed, Embase and Web of Science spanning from inception to November 09, 2020.

Selection criteria: Articles were included if they focused on COVID-positive mothers, commented on at least one of the three areas of interest, and were published in English.

Data collection and analysis: Our combined database search yielded 385 articles. After removing duplicates and articles that did not cover the correct populations or subject matter, a total of 74 articles remained in our analysis.

Main results: Most articles recommended direct breastfeeding with enhanced precaution measures. Recommendations regarding post-partum social distancing varied, although articles published more recently often recommended keeping the mother and newborn in the same room when possible. Decontamination recommendations emphasized mask wearing, good hand hygiene, and proper cleaning of surfaces.

Conclusion: In general, there was a focus on shared decision making when approaching topics such as breastfeeding and post-partum social distancing. Guidelines for decontamination were fairly uniform.

Title: Risk of symptomatic COVID-19 due to aircraft transmission: a retrospective cohort study of contact-traced flights during England's containment phase.

Citation: Influenza and other respiratory viruses; Mar 2021

Author(s): Blomquist, Paula Bianca; Bolt, Hikaru; Packer, Simon; Schaefer, Ulf; Platt, Steven; Dabrera, Gavin; Gobin, Maya; Oliver, Isabel

Background: Knowledge gaps remain regarding SARS-CoV-2 transmission on flights. We conducted a retrospective cohort study to estimate risk of acquiring symptomatic SARS-CoV-2 on aircraft, to inform contact tracing and infection control efforts.

Methods: We identified co-passengers of infectious passengers on 18 England-bound flights from European cities up to 12/03/2020, using manifests received for contact tracing. Infectious passengers were laboratory-confirmed cases with symptom onset from 7 days before to 2 days after the flight. Possible aircraft-acquired cases were laboratory-confirmed with onset 3-14 days post-flight with no known non-flight exposure. Manifests was merged with the national case management dataset (identifying cases, onset dates, contact tracing status) and the national COVID-19 linelist. Contact tracing notes were reviewed to identify non-flight exposures. We calculated attack rates (ARs) among all co-passengers and within subgroups, including by distance from infectious cases and number of infectious cases on-board.

Results: There were 55 infectious passengers and 2313 co-passengers, including 2221 flight-only contacts. Five possible aircraft-acquired cases were identified; ARs of 0.2% (95%CI 0.1-0.5) among all flight-only contacts and 3.8% (95%CI 1.3-10.6) among contact-traced flight-only contacts sat within a two-seat radius. The AR among 92 co-travellers with known non-flight exposure to infectious cases was 13.0% (95%CI 7.6%-21.4%). There were insufficient numbers to assess differences between subgroups.

Conclusion: We conclude that risk of symptomatic COVID-19 due to transmission on short to medium-haul flights is low, and recommend prioritising contact-tracing of close contacts and co-travellers where resources are limited. Further research on risk on aircraft is encouraged.

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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