

Evidence summary tables: NIPCM literature identified January to March 2019

Titles and abstracts are reviewed for subject relevance. Additional exclusion criteria are also applied as per the [NIPCM methodology](#).

Standard Infection Control Precautions:

Literature review	Papers identified	Summary of scientific findings	Impact on recommendations
Hand Hygiene: Hand Hygiene Products	Comparative Antimicrobial Efficacy of Two Hand Sanitizers in Intensive Care Units Common Areas: A Randomized, Controlled Trial. Deshpande A, Fox J, Wong KK, Cadnum JL, Sankar T, Jencson A, Schramm S, Fraser TG, Donskey CJ and Gordon S. <i>Infection Control & Hospital Epidemiology</i> 39(3): 267-271, 2018.	This randomised double-blind trial compared the efficacy of two alcohol-based hand rubs (ABHR); one containing 70% ethanol, and one containing 61% ethanol plus 1% chlorhexidine gluconate, when used in an intensive care unit (ICU). The recovery of aerobic colony forming units (CFUs) was significantly lower with the chlorhexidine ABHR both immediately after use ($p=0.035$) and after spending time in ICU common areas ($p<0.0001$). Further research involving patient rooms and assessing rate of healthcare-associated infections is required.	None.
	Bactericidal and Virucidal Activity of Povidone-Iodine and Chlorhexidine Gluconate Cleansers in an In Vivo Hand Hygiene Clinical Simulation Study. Eggers M, Koburger-Janssen T, Ward LS, Newby C and Muller S. <i>Infectious Diseases & Therapy</i> 7(2): 235-247, 2018.	This study compared efficacy of povidone-iodine (PVP-I) and chlorhexidine gluconate (CHG) cleansers. Test series were performed for bactericidal and virucidal testing of CHG and PVP-I. After pre-washing, hands were artificially contaminated with either <i>Escherichia coli</i> or murine norovirus (MNV). Volunteers used 3 and 5 ml of each product for contact times of 15, 30 and 60 seconds. Number of organisms released from fingertips into sampling fluids was assessed before and after hand washing and mean \log_{10} reduction factors (RFs) were calculated. Both PVP-I 7.5% and CHG 4% cleansers passed EN1499 requirements against <i>E. coli</i> and had significantly greater ($p\leq 0.01$) mean \log_{10} RFs when compared with the reference soft soap across all tests. Mean \log_{10} RFs of MNV were significantly greater for PVP-I when compared with the reference soap. However CHG gave lower mean \log_{10} RFs than the reference soap across all tests.	None. Adds to evidence base.

<p>Hand Hygiene: Surgical Hand Antisepsis in the Clinical Setting</p>	<p>Comparison of efficacy of chlorhexidine alcohol scrub and povidone iodine scrub in hand cleansing in elective clean surgery. Takalkar YP, Garale MN, Somasundaram S, Venkataramani K, Gothwal KN and Pandrowala SA. <i>International Surgery Journal</i> 3(4): 1937-1941, 2016.</p>	<p>This double blind prospective interventional study assessed the surgical site infection (SSI) rate in patients aged 12 years and over undergoing elective clean surgeries (n=399). Surgeons were randomly assigned to use either povidone-iodine 7.5% surgical scrub or chlorhexidine gluconate 2.5% (70% alcohol) before surgery. Patients who developed SSIs were expressed as a percentage of the total. Both groups were comparable for most variables. It was observed that normal-weight and overweight patients in the chlorhexidine group had more infection while moderately obese patients in the povidone-iodine group had more infection. Povidone-iodine 7.5% and chlorhexidine gluconate 2.5% were found to be equally effective surgical scrubs in this setting.</p>	<p>None.</p>
	<p>Operating Room Hand Preparation: To Scrub or to Rub? Fry DE. <i>Surgical Infections</i> 20(2): 129-134, 2019.</p>	<p>This review of published literature was undertaken to determine the best method of hand preparation before surgical procedures with focus on conventional surgical scrubbing compared with alcohol rubbing. Bacteriological studies of the hands following conventional scrubbing versus alcohol rubbing showed consistently comparable or superior bacterial reduction following alcohol rubbing. Four clinical studies that compared scrubbing versus rubbing in terms of frequency of surgical site infections found no difference between hand antisepsis methods. The authors conclude that alcohol rub for surgical hand antisepsis has comparable results to the conventional surgical scrub.</p>	<p>None.</p>
<p>Hand Hygiene: Skin Care</p>	<p>Self-report occupational-related contact dermatitis: prevalence and risk factors among healthcare workers in Gondar town, Northwest Ethiopia, 2018-a cross-sectional study. Mekonnen TH, Yenealem DG and Tolosa BM. <i>Environmental Health & Preventive Medicine</i> 24(1): 11, 2019.</p>	<p>A total of 422 participants completed the standardised Nordic Occupational Skin Questionnaire through interview. A binary logistic regression analysis was conducted. Overall prevalence of self-reported occupational contact dermatitis within the previous 12 months was 31.5% (133 individuals). Most common symptoms were redness (29.5%) and burning (17.3%). Hands were</p>	<p>None. Adds to evidence base.</p>

		the most affected body site (22%). Frequency of hand washing, pairs of hand gloves used per day, personal history of allergy and lack of health and safety training were all factors associated with contact dermatitis.	
Personal Protective Equipment (PPE): Aprons/Gowns	Wearing long sleeves while prepping a patient in the operating room decreases airborne contaminants. Markel TA, Gormley T, Greeley D, Ostojic J and Wagner J. <i>American Journal of Infection Control</i> 46(4): 369-374, 2018.	This study investigated the effects on airborne contamination when wearing long sleeves in the operating room. A mock patient skin prep was performed in 3 different operating rooms. A long-sleeved gown and gloves, or bare arms were used to perform the procedure. Particle counts were used to assess airborne particulate contamination, and active and passive microbial assessment was achieved through air samplers and settle plate analysis. There was a decrease in 5.0µm particle size with the use of sleeves in one operating room; in the remaining 2 operating rooms there was a decrease in the total microbes only with the use of sleeves. There was no difference in the average number of total microbes for all operating rooms assessed. Further research is required.	None.
Routine Cleaning of the Care Environment	Evaluation of Bacterial Contamination on Prehospital Ambulances Before and After Disinfection. Farhadloo R, Goodarzi Far J, Azadeh MR, Shams S and Parvaresh-Masoud M. <i>Prehospital & Disaster Medicine</i> 33(6): 602-606, 2018.	This quasi-experimental study with a before-and-after design assessed the effectiveness of a disinfectant on the rate of microbial contamination of ambulances in Iran. The disinfectant (Saya sept-HP-2%) contained quaternary ammonium compounds and polyhexamethylene biguanide. Contamination rates before and after use of disinfection solutions were 52% and 8%, respectively. Coagulase-negative staphylococci were the most commonly isolated bacterial agent from the ambulance equipment. In all equipment, there was a significant reduction in the contamination level after applying disinfectant.	None.
Routine Cleaning of the Care Environment	Back to Basics: Environmental Cleaning Spruce L and Wood A. <i>ORNAC Journal</i> . 34(4): 58-63, 2016.	Education document from AORN outlining basic principles for environmental cleaning in the perioperative setting. This document highlights that the environment plays a role in healthcare associated infections (HAIs) including surgical site infections. AORN advise frequent cleaning of high-	None. Adds to evidence base.

		touch surface areas to prevent the spread of infections and routine cleaning and disinfecting of the patient's environment to reduce level and frequency of contamination and the risk of HAIs. They suggest using a bundled approach to perform a standardised cleaning routine and implementing a successful monitoring programme. Further recommendations are included within the document.	
	Degree of Bacterial Contamination of Mobile Phone and Computer Keyboard Surfaces and Efficacy of Disinfection with Chlorhexidine Digluconate and Triclosan to Its Reduction. Koscova J, Hurnikova Z and Pisl J. <i>International Journal of Environmental Research & Public Health</i> 15(10), 2018.	This study evaluates the use of disinfection wet wipes for reduction of microbial contamination of mobile phones and computer keyboards. Bacteriological swabs were taken before and after disinfection with wipes containing both active ingredients chlorhexidine digluconate and triclosan. The incidence and type of microorganisms isolated before and after disinfection was evaluated and the difference expressed as a percentage of contamination reduction. Results indicated a high degree of surface contamination with pathogens, some of which are opportunistic for humans. Before disinfection, common skin commensal bacteria like coagulase-negative staphylococci were identified most frequently from surfaces, mobile phones and keyboards. On keyboards <i>Enterobacteriaceae</i> were abundant. Swabs 5 minutes after disinfection showed that simple wiping with antibacterial wet wipe led to a significant reduction of microbial contamination of surfaces with effect ranging from 36.8 to 100%.	None.
Management of Patient Care Equipment	Mycobacterium chimaera in heater-cooler units used during cardiac surgery - growth and decontamination. Bengtsson D, Westerberg M, Nielsen S, Ridell M and Jonsson B. <i>Infectious Diseases</i> 50(10): 736-742, 2018.	This study tested the occurrence of Mycobacterium <i>chimaera</i> in heater-cooler units (HCUs) directly (15 minutes) after disinfection with a silver-ion cleaning routine and later on 3 occasions (3, 6, 10 weeks). The silver-ion cleaning routine was insufficient and <i>M. chimaera</i> was found in all HCUs. Tap water samples were negative for mycobacteria suggesting residual water and biofilm in the HCUs may be of importance.	None.

Transmission Based Precautions:

Literature review	Papers identified	Summary of scientific findings	Impact on recommendations
	None identified.		