Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Discussion: A large institutional outbreak of COVID-19 was controlled using a pragmatic and iterative suite of interventions.

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HAND HYGIENE IN SMALL ANIMAL VETERINARY PRACTICES – MORE THAN A LICK AND A PROMISE

Angela Willemsen1, Rowland Cobbold1, Justine Gibson1, Kathryn Wilks1,2, Simon Reid1
1School of Public Health, The University of Queensland, Herston, Australia
2School of Veterinary Science, The University of Queensland, Gatton, Australia

Introduction: Hand hygiene (HH) is recognised as an important infection prevention and control practice to reduce the risk of pathogen transfer. Australian human health care facilities have allocated considerable resources and training to improve HH compliance. Small animal veterinary practices also have a need to demonstrate good HH. Formal HH training and auditing does not occur in veterinary practice.

Methods: A pragmatic pilot trial of educational interventions was conducted in six heterogeneous small animal veterinary practices. Hand hygiene compliance was evaluated using the World Health Organization 5 Moments for HH.

Results: Hand hygiene compliance was low (14%) pre-intervention and improved to 46% after a six-week intervention. Compliance dropped to 35% six-months post intervention. All five moments improved immediately post intervention. There was a significant difference between pre and immediately post-intervention with HH compliance for Moment 5 — after touching a patient’s surroundings, at the 95% level of confidence. There were no significant differences between the other moments. Moment 3 — After a procedure and body fluid risk and Moment 4 — After touching a patient, were consistently higher than other moments in all audit periods.

Conclusion: Trial results suggest that a human based HH intervention and improve practices. Management support and dedicated time for staff to attend training can help with HH uptake. The improvements in HH compliance are encouraging and illustrate improvement can occur with education.

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PUBLIC’S USE OF PPE AND STRATEGIES TO AVOID CONTAGION DURING COVID-19 PANDEMIC IN AUSTRALIA AND GERMANY

Stéphane Bouchouka1, Petra Buchwald2, Kathleen Moore3
1Deakin University, Melbourne, Australia
2Bergische Universität Wuppertal, Germany
3Federation University, Churchill, Australia

Introduction: The significant media coverage of the prevalence and morbidity rates of SARS-CoV-2 has raised public awareness of Infection Prevention and Control strategies related to communicable diseases. The aims in this study were to investigate the strategies people in Australian and Germany use, and situations they avoid, to protect themselves from contracting COVID-19.

Methods: A cross-sectional survey of 213 Australian and 424 German participants completed items designed for this study.

Results: Our study identified mode/timing of delivery and curriculum differed across all IPC guidelines. Few acknowledged the need to incorporate adult learning principles. Four pandemic guidelines discussed training HCWs on correct personal protective equipment (PPE) use. None of the COVID-19 guidelines recommended training HCWs for PPE reuse or extended use. Inadequate training, poor resource allocation, lack of leadership support, was some factors identified through interviews.

Conclusion: While it is critical that training materials and approaches are tailored for localised settings, it is also important that countries ensure that best practice principles are captured within guidelines to set a standard for health department and individual organisations to follow.

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TRAINING OF HEALTHCARE WORKERS TO PROTECT FROM INFECTIOUS DISEASES

Mohammed Owais Qureshi1, Abcar Chughtai, Holly Seale
1University of New South Wales, Sydney, Australia

Introduction: Numerous studies have been done within countries to look at the availability and delivery of occupational health and safety (OHS) training for healthcare workers (HCWs). However, there has been a failure to date to compare countries to explore the level of variation in guidelines and recommendations regarding the development and implementation of OHS training, focused particularly on staff health. Our study compared the infection prevention and control (IPC) guidelines from multinational and individual countries to explore the recommendations.

Methods: This program of work reviewed IPC guidelines from the WHO, the US CDC, and eight selected countries, as well as the pandemic guidelines from 23 countries. Twenty-one key-stakeholders from six selected high, low- and middle-income countries were interviewed to further understand the landscape. Lastly, a two-round modified-Delphi approach was used to develop recommendations on the elements required to ensure best practice around training.

Results: Our study identified mode/timing of delivery and curriculum differed across all IPC guidelines. Few acknowledged the need to incorporate adult learning principles. Four pandemic guidelines discussed training HCWs on correct personal protective equipment (PPE) use. None of the COVID-19 guidelines recommended training HCWs for PPE reuse or extended use. Inadequate training, poor resource allocation, lack of leadership support, was some factors identified through interviews.

Conclusion: While it is critical that training materials and approaches are tailored for localised settings, it is also important that countries ensure that best practice principles are captured within guidelines to set a standard for health department and individual organisations to follow.

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VIRUS AEROSOL PROPAGATION BY CONTINUOUS POSITIVE AIRWAYS PRESSURE (CPAP) IS PROPORTIONAL TO MASK LEAK

Simon Joosten1,2, Jeremy Barr1, Martin MacDonald1, Dinesh Subedi1, Darren Mansfield1,2, Garun Hamilton1,2, Bradley Edwards1, Shane Landry1
1Monash University, Melbourne, Australia
2Monash Health, Melbourne, Australia

Introduction: Nosocomial transmission of SARS-CoV-2 has caused significant morbidity/mortality in the COVID-19 pandemic. Because patients auto-emit aerosols containing viable virus, these aerosols can be further propagated when patients undergo certain treatments including continuous positive airway pressure (PAP) therapy. This study aimed to assess the degree of viable virus propagated from mask leak in a PAP circuit.

Methods: Bacteriophage PhiX174 (108 copies/mL) was nebulised into a custom PAP circuit. Mask leak was systematically varied to 0, 7, 21, 28 and 42 L/min at the mask interface. Plates containing Escherichia coli assessed the degree of viable virus settling on surfaces around the room. In order to contain virus spread a ventilated headboard and high efficiency particulate air (HEPA) filter was tested.

Results: Increasing mask leak was associated with virus contamination in a dose response manner (\(r^2 = 0.82, df = 4, p<0.001\)). Clinically relevant levels of leak (\(>21\) L/min) were associated with virus counts equivalent to using PAP with a standard vented mask. Viable viruses were recorded on all patients' face while the Australian sample scored higher on avoiding travel, avoiding leaving the house either generally or unless for work or school, as well as avoiding people who sneeze or cough. With no foreseeable end to this pandemic, it is important follow-up studies ascertain whether people continue to adopt PPE and follow government advice or if fatigue sets in.

Scale, both samples avoided public transport, restaurants and cafés, and large groups, typical areas of possible contagion. The German sample reported higher scores on avoiding shaking hands, hugging, and touching their face while the Australian sample scored higher on avoiding travel, avoiding leaving the house either generally or unless for work or school, as well as avoiding people who sneeze or cough. With no foreseeable end to this pandemic, it is important follow-up studies ascertain whether people continue to adopt PPE and follow government advice or if fatigue sets in.
plates (up to 3.86m from source). A plastic hood with HEPA filtration significantly reduced viable viruses on all plates. HEPA exchange rates of 170 and 470m³/hr eradicated all evidence of virus contamination.

Discussion: Mask leak from PAP circuits may be a major source of environmental contamination and nosocomial spread of infectious respiratory diseases. Subclinical levels of leak should be treated as an infectious risk. Cheap and low-cost patient hoods with HEPA filtration are an effective countermeasure.

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THE NEED FOR A NATIONAL FRAMEWORK TO OPTIMISE SURGICAL ANTIMICROBIAL USE IN AUSTRALIA

Courtney Ierano1,2, Karin Thursky1,2,3,4
1National Centre for Antimicrobial Stewardship, Melbourne, Australia
2Department of Infectious Diseases - Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne, Australia
3Peter MacCallum Cancer Centre, Melbourne, Australia
4Royal Melbourne Hospital, Melbourne, Australia

Background: Surgical antimicrobial prophylaxis (SAP) is the most common indication for antimicrobial prescribing in Australian hospitals, and is associated with the lowest rates of appropriateness (~ 50%). The National Centre for Antimicrobial Stewardship (NCAS) is a ‘One Health’ research program supporting quality antimicrobial use and implementation of antimicrobial stewardship (AMS). There has been little improvement in appropriate SAP prescribing despite national prescribing guidelines and established hospital accreditation AMS frameworks.

Methods: This NCAS doctoral program adopted a mixed-methods design integrating quantitative and qualitative research. Projects included; guideline implementability assessments, multiple logistic regression analyses of the Surgical National Antimicrobial Prescribing Survey dataset and a qualitative case study exploring the phenomenon of SAP decision-making across key professional groups.

Results: A framework to support surgical AMS (and outcome measures such as surgical site infection surveillance) in Australia does not currently exist. SAP prescribing practices continue to demonstrate high rates of inappropriateness across a range of surgical specialties and procedures. Qualitative research highlighted the need for resources to support adequate documentation and communication about SAP prescribing decisions, engagement with senior clinicians who significantly influence their juniors’ prescribing practices, and the need for meaningful data addressing common fears and misperceptions regarding SAP durations to generate prescribing behaviour change.

Conclusions: Recognising the complex structural, cultural, behavioural and technological challenges, we propose the next steps are to employ a learning health systems approach utilising health services research and implementation science methodologies to support the development and implementation of a surgical AMS framework that is adaptable for further scaling nationwide.

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THE PATIENT EXPERIENCE OF FAECAL MICROBIOTA TRANSPLANTATION: A SYSTEMATIC REVIEW

Jessica Guilfoyle1, Julie Considine1,2,3, Stéphane Bouchoucha1,9
1Deakin University, Australia
2Deakin University Eastern Health Partnership, Australia
3Deakin University Institute for Health Transformation, Australia

Introduction: Faecal microbiota transplantation is a common treatment for Clostridium Difficile infections. Patients’ experience of treatments is an important influence on clinical decision-making and treatment adherence, yet it is often overlooked when investigating FMT for C Diff.

Methods: A systematic review of published literature following the PRISMA guidelines. The review was registered with PROSPERO [CRD42020140446]. The Cumulative Index of Nursing and Allied Health Literature, Medline and Embase were searched for studies published in English and French. Risk of bias was examined using Critical Appraisal Skills Program tools, and quality appraisal was performed independently by three reviewers. Primary outcome of interest was the patient experience of faecal microbiota transplantation. Data were synthesised using a narrative approach.

Results: Of the 3316 citations identified, 12 studies were included. Studies were assessed as being of moderate to low quality. Only one study was identified where the sole focus was the patients’ experience. In addition, few studies have accurately explored the patients’ experience of faecal microbiota transplantation, most focus on clinical outcomes or hypothetical scenarios regarding the patients’ perspectives of faecal microbiota transplantation. Patient’s experience of faecal microbiota transplantation was found to be diverse and complex, with physiological and psychological components dependent on the patient’s medical condition, the administration method, and the efficacy.

Conclusions: Patients did not find faecal microbiota transplantation unappealing or disgusting, however, patients reported the procedural experience as unpleasant. Limited results and low-quality evidence suggest that further evaluation of the patient experience of faecal microbiota transplantation would be beneficial.

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MIDLINE PILOT RANDOMISED CONTROLLED TRIAL: MANAGING PERIPHERAL INTRAVENOUS DEVICES AMONG ADULT HOSPITAL PATIENTS WITH LIMITED VASCULAR ACCESS OR PROLONGED THERAPY TRIAL

Nicole Marsh1,2,3, Emily Larsen1,2, Catherine O’Brien1,2, Robert Ware3, Tricia Kielson3,4,5, Peter Groom1,6, Barbara Heuer1,7, Evan Alexandrou7,8, Julie Flynn1,2, Kaylene Woollett1, Claire Rickard1,2,3
1Nursing & Midwifery Research Centre, Surgical and Perioperative Services, Herston Infectious Diseases Institute, Royal Brisbane and Women’s Hospital, Herston, Australia

Background: Surgical antimicrobial prophylaxis (SAP) is the most common indication for antimicrobial prescribing in Australian hospitals, and is associated with the lowest rates of appropriateness (~ 50%). The National Centre for Antimicrobial Stewardship (NCAS) is a ‘One Health’ research program supporting quality antimicrobial use and implementation of antimicrobial stewardship (AMS). There has been little improvement in appropriate SAP prescribing despite national prescribing guidelines and established hospital accreditation AMS frameworks.

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Results: A framework to support surgical AMS (and outcome measures such as surgical site infection surveillance) in Australia does not currently exist. SAP prescribing practices continue to demonstrate high rates of inappropriateness across a range of surgical specialties and procedures. Qualitative research highlighted the need for resources to support adequate documentation and communication about SAP prescribing decisions, engagement with senior clinicians who significantly influence their juniors’ prescribing practices, and the need for meaningful data addressing common fears and misperceptions regarding SAP durations to generate prescribing behaviour change.

Conclusions: Recognising the complex structural, cultural, behavioural and technological challenges, we propose the next steps are to employ a learning health systems approach utilising health services research and implementation science methodologies to support the development and implementation of a surgical AMS framework that is adaptable for further scaling nationwide.