Introduction: Needleless connectors (NCs) help to provide a safe (needle-free) link between vascular access devices, syringes, and intravenous infusion sets. Despite this, NC have been associated with catheter-related bloodstream infections, often related to poor decontamination practices. Nurses are the most frequent users of NC; this study aimed to explore their attitudes, techniques, and practices around the use and decontamination of NCs.

Methods: Using qualitative methods, we conducted seven focus groups (n = 4-6, each) in cancer and surgical units of the Royal Brisbane and Women’s Hospital (Queensland, Australia) between January and March 2019. The clinical units selected had recently taken part in a randomised controlled trial of three different methods of NC decontamination. Focus group transcriptions were analysed using content analysis.

Results: In total, n = 30 participants were included in the seven focus groups (duration, 16 and 20 minutes). Six major themes were identified including: ‘safety and utility’; ‘terminology and technological understanding’; ‘clinical practice determinants’; ‘decontamination procedures and influencers’; ‘education and culture’; and ‘research and innovation’. Nurses overwhelming reported good intentions toward their decontamination and NC maintenance practices (such as NC replacement), however competing demands on their time was a barrier. Common trademarked phrases were easily articulated (e.g., ‘Scrub the Hub™’), however specific local guidelines (e.g., time to clean, time to dry) were less well understood.

Conclusion: Understanding attitudes, techniques, and practices for the use and decontamination of NCs is important to enable targeted quality improvement strategies. Our study identified several important areas for improved education, and behavioural change.

37. AUSTRALIAN EMERGENCY NURSES’ EXPERIENCES OF WORK, USING PERSONAL PROTECTIVE EQUIPMENT DURING THE COVID-19 PANDEMIC: A QUALITATIVE STUDY

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The COVID-19 pandemic has challenged health care professionals and changed our approach to the delivery of patient care. Experience during the COVID-19 has highlighted the need to better understand and manage the challenges relating to the use of personal protective equipment (PPE) experienced by frontline health care workers.

Aims: To explore and describe nurses’ experience with the use of personal protective equipment in the Emergency Department (ED), during the COVID-19 pandemic in Australia.

Design: A qualitative explorative descriptive design was used.

Methods: Participants were 24 nurses (clinical and managerial). One focus group and 21 individual semi-structured interviews were conducted between January and April 2022. Qualitative descriptive thematic analysis was used to identify themes, elicit meaning and communicate findings using Braun and Clarke’s six steps as the guiding framework.

Results: Five main themes identified: (i) The shifting ground of the COVID pandemic response, (ii) Disconnect between the ED team and organisational leaders (iii) Working in PPE causes exhaustion, physical discomfort and injury (iv) Challenges providing safe patient care (v) Discrete event with timeless consequences.

Conclusion: This study evidenced an array of adverse effects and staff concerns arising from use of personal protective equipment during the COVID-19 pandemic response in 2020-22. Experiences during the pandemic highlighted a long standing and urgent need to bolster the nurse workforce particularly in emergency nursing. Innovation is needed in PPE design to increase both protection from novel pathogens and user comfort.

Keywords: Registered Nurse, Emergency Department, Personal Protective Equipment, COVID-19 pandemic, Australia

38. IMPLEMENTATION OF A SUCCESSFUL STATEWIDE FIT TESTING PROGRAM: BREAKING DOWN THE CHALLENGES AND BARRIERS

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Background: Since its emergence, millions of people have acquired and died from SARS-CoV-2 infections. A key controversy has been how to protect health workers (HWs) when there is ambiguous evidence on the adequacy of personal protective equipment and fit testing. Operationalizing these requirements was very challenging as fit testing had not been routine practice in New South Wales (NSW) Health. Furthermore, it is impractical to test 140,000 HWs in the middle of a pandemic.

Method: A multidisciplinary Respiratory Protection Program (RPP) board was convened with representatives from work health and safety, workplace relations and clinical teams along with legal and union delegates with the aim of providing strategic advice and guidance on implementation, monitoring, and outcomes of RPP.

Results: Local implementation was led by Infection Prevention and Control and by experienced nurses and work health and safety experts. The program included the more complex aspects of managing HWs who are unable to pass a fit test due to religious, cultural, or medical conditions. During 2021 NSW Health performed 234,499 fit tests on 84,685 HWs with overall, 98% of HWs (n=83210) achieving a fit test pass, demonstrating the success of the program.

Conclusion: Fit testing is now well established and continues as new staff enter the workforce, new respirators become available as well as repeat testing for those many frontline HWs who were fit tested early in the pandemic. The RPP board is progressing with an evaluation of the program to determine its impact, effectiveness, and sustainability in coming years.

39. “LIKE BUILDING A PLANE AND FLYING IT ALL IN ONE GO”: APPLYING THE HIERARCHY OF CONTROLS IN AUSTRALIAN GENERAL PRACTICES DURING THE SARS-COV-2 PANDEMIC

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Introduction: General practices have been at the forefront of the primary health response to the SARS-CoV-2 pandemic in Australia. Like the rest of the health system, they have had to rapidly adapt and implement a range of novel infection prevention and control (IPC) strategies. We conducted an interview study to explore not only what kinds of strategies were adopted in general practice, but also how they were adapted to diverse practice settings, and what factors facilitated and challenged their implementation.

Methods: Twenty semi-structured interviews were conducted with general practice personnel working in New South Wales, Australia, including general practitioners (GPs), nurses, practice managers and receptionists, between November 2020 and August 2021.

Results: Participants described implementing a wide-range of strategies across the hierarchy of controls to manage the demands of pandemic IPC. Strategies were creatively adapted (and reinvented) with resourcefulness and agility by participants, in ways that were sensitive to the varied contexts of general practice, and the needs and preferences of individual GPs; as well
as responsive to local, State and national requirements, which changed frequently as the pandemic evolved.

Conclusion: Our findings demonstrate how the hierarchy of controls can be applied and extended to guide pandemic IPC in general practice. We show how different controls (particularly engineering and administrative) often functioned in concert within practices; as well as externally. This invites us to consider not only how strategies might be ranked for reliability, but also how healthcare professionals can combine them for greater efficacy.

40. RISK FACTORS FOR CENTRAL VENOUS ACCESS DEVICE FAILURE DUE TO CENTRAL LINE ASSOCIATED BLOOD STREAM INFECTION (CLABSI): A MULTIVARIABLE ANALYSIS OF 1892 CATHETERS

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Introduction: Central venous access devices (CVAD) are a vital medical device but develop infectious complications necessitating premature removal. We examined risk factors for central line-associated blood stream infection (CLABSI) in patients ≥16 years to determine modifiable practices amenable to change.

Methods: In this secondary analysis of data from a 10-site randomised controlled trial, central line-associated blood stream infection (CLABSI), occlusion and sludgement were examined using Cox proportional hazards regression models informed by Bayesian information criteria.

Results: 1892 CVADs were included in the multivariable analysis: 806 non-tunnelled CVADs (reference), 757 peripherally-inserted central catheters (PICCs) and 329 tunnelled CVADs. CLABSI was highest in tunnelled CVADs (n=39, 11.9%), compared with 5.3% for PICCs (n=40) and 2.6% for non-tunnelled CVADs (n=21). Factors associated with increased CLABSI for tunnelled and non-tunnelled CVADs was having only 1-2 lumens (Hazard Ratio [HR] 29.94, p<0.001; and HR 8.20, p=0.045, respectively). Multiple attempts/difficult insertions were also significantly associated with CLABSI in tunnelled CVADs (HR 6.26, p=0.013), and administration of blood products in PICCs (HR 1.70, p=0.04). Factors associated with lower rates of CLABSI were the use of an antimicrobial catheter and chlorhexidine gluconate dressing in non-tunnelled CVADs (HR 0.23, p=0.004; and HR 0.41, p=0.05, respectively).

Conclusion: Modifiable risk factors for CVAD complications have been identified, particularly observing strict infection prevention protocols when accessing heavily-used catheters with fewer lumens, and ensuring that tunnelled CVADs are inserted by experienced clinicians to limit multiple attempts. These findings can inform practice change to reduce the incidence of preventable CLABSI and improve patient outcomes.

41. A MOVE TO LIGHT SURVEILLANCE FOR NATIONAL ORTHOPAEDIC SURGICAL SITE INFECTION REPORTING

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Introduction: Since 2013, the Health Quality & Safety Commission New Zealand has collected orthopaedic surgical site infection (SSI) data for publicly funded hip and knee arthroplasty procedures as part of the Surgical Site Infection Improvement Programme.

Process and outcome measures are captured. By 2019 district health boards (DHBs) had achieved 96-98% compliance for process measures (appropriate timing and dose of antibiotic prophylaxis, and alcohol-based skin antisepsis) and there was a 25% reduction in the median SSI rate. These results, and feedback about the resource required to collect data, led to an evaluation of the programme and introduction of a light surveillance reporting model.

Method: In October 2020, the option to shift to ‘light surveillance’ was implemented. This reduced mandatory data fields from 35 to 5. A review of SSI cases using a standardised investigation tool and a variable life-adjusted display (VLAD) report for early identification of an SSI risk increase was introduced. The findings are shared at quarterly network meetings.

Progress: Fourteen of twenty DHBs shifted to light surveillance. Changes to SSI risk is actively monitored. A DHB survey showed a median time saving of 16 hours each reporting quarter. Use of the investigation tool has enabled DHBs to identify risks and opportunities for improvement.

Conclusion: The reduction in resource requirement for data collection provided by the shift from full surveillance to light surveillance has freed up time to focus on in-depth review of SSI cases. The SSI investigation tool and VLAD report provides a systematic approach to monitoring results.

42. THE EFFECT OF COVID-19 ON HEALTHCARE ASSOCIATED INFECTIONS IN 5 AUSTRALIAN HOSPITALS

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Introduction: The COVID-19 pandemic has had a significant impact on the healthcare environment including the increased use of Personal Protective Equipment (PPE) and awareness of hand hygiene in hospital settings. The aim of this study was to measure if heightened awareness of infection prevention and control (IPC) measures during COVID-19 influenced the rates of healthcare associated infections (HAI).

Methods: A 3 year retrospective review of laboratory data from 1 large private and 4 large public hospitals was undertaken. Monthly bloodstream infection (BSI) data, urinary tract infection (UTI) data and cerebrospinal fluid cerebrospinal fluid (CSF) data were collected from January 2017 to March 2021. Occupied bed days (OBDs) were used to generate HAI incidence per 10,000 OBDs. An interrupted time series analysis was undertaken to compare incidence pre and post February 2020.

Results: A total of 1,988 BSI, 1,697 UTI and 238 CSF episodes were identified. The overall rate of HAI aggregated for all sites did not differ significantly between the two periods. One hospital demonstrated a significant downwards trend following February 2020 (p=0.024) and a significant difference between the two periods. The aggregated BSI rate for all sites demonstrated a significant difference between the two periods (p=0.004). No other significant differences were identified.

Conclusion: Whilst there was no significant reduction in overall HAI rates for all sites aggregated, there was a downward trend. Factors to consider in this analysis include likely changes in patient populations with widespread cancellation of elective admissions and increased admission for COVID-19.

45. CLOSTRIDIODES DIFFICILE: THE VALUE OF WHOLE GENOME SEQUENCING TO RULE OUT A COMMON SOURCE HEALTHCARE ASSOCIATED OUTBREAK

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Introduction: Clostridioides difficile (C. difficile) is a Gram positive, anaerobic, spore forming bacterium. Asymptomatic bowel colonisation occurs, but C. difficile infection (CDI) can cause symptoms ranging from mild diarrhoea to pseudomembranous colitis. CDI is the most common cause of hospital-acquired diarrhoea. Outbreaks can be difficult to manage due to C. difficile spores’ survival for extended periods in the environment. Whole genome sequencing (WGS) can be helpful in outbreak management.

Methods: Five patients, who were co-located in a 30 bed aged care ward developed sudden onset diarrhoea. All 5 patients had been admitted for >48 hours, and all had recently received antibiotics. An outbreak investigation was initiated and control measures implemented. Laboratory testing