Autumn 2019

ACORN
AUSTRALIAN COLLEGE OF PERIOPERATIVE NURSES

Journal of Perioperative Nursing

Volume 32
Number 1
Autumn 2019

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Journal of Perioperative Nursing: The official journal of the Australian College of Perioperative Nurses

ISSN 2209-1084 (print)
ISSN 2209-1092 (online/digital)

Published quarterly by
ACORN
PO Box 899
Lyndoch SA 5351
www.acorn.org.au

Copy editor Eleanor Tan

Graphic design Savanah Design

Subscription enquiries
administrator@acorn.org.au

Author enquiries

Author guidelines are available at www.acorn.org.au/journal/author-guidelines.

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FLAME_3M4630A_02/19

ACORN

The Australian College of Perioperative Nurses (ACORN) is a registered Australian company and health promotion charity. It exists to serve its members, the perioperative profession, the patient and the community to promote the prevention and control of disease.

ACORN's vision is for Australian patients to receive the safest and highest quality evidence-based perioperative care in the world.

Editorial

Preventing perioperative hypothermia is clinically feasible and cost effective

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Inadvertent perioperative hypothermia is associated with serious adverse surgical outcomes including increased infection rates, morbid cardiac events and surgical bleeding[1]. Surgical patients are particularly at risk of hypothermia because of 'anaesthetic-induced impairment of thermoregulatory control' and the 'cool operating room' temperature that create the perfect combination for developing hypothermia post-surgery[1,2].

Perioperative hypothermia develops in three characteristic phases:

1. a rapid decrease in core temperature in the first hour due to core to peripheral redistribution of body heat mediated by the use of volatile anaesthetic agents
2. a slow linear decrease in core temperature due to heat loss exceeding metabolic heat gain
3. a plateau in temperature in which vasoconstriction decreases heat loss from the skin[3].

Perioperative hypothermia increases the incidence of complications following surgery. Reducing the incidence of perioperative hypothermia through appropriate perioperative care can reduce the number and complexity of complications that arise. Sessler[2] investigated the complications that arise from hypothermia by reviewing the current literature and reported a dozen major health consequences. Myocardial ischemia, coagulopathy or blood loss, prolonged hospitalisation and thermal discomfort are just a few examples of the serious complications that are caused by perioperative hypothermia. Enzymes that regulate organ functions and process medications, for instance, are very sensitive to the change in body temperature and consequently hypothermia affects the pharmacodynamics of many drugs.

Recent developments in thermal care

The United Kingdom National Institute for Health and Clinical Excellence (NICE) has published a guideline 'Perioperative hypothermia (inadvertent): The management of inadvertent perioperative hypothermia in adults' detailing appropriate perioperative thermal management to minimise the occurrence of perioperative hypothermia. The guideline is based on a comprehensive systematic review including both meta-analysis and cost-effectiveness analysis[4].

Recommendations from the guideline include the requirement for preoperative hypothermia risk assessment, regular temperature monitoring, and active and passive warming strategies. However, compliance with recommendations in clinical practice is poor despite their relative simplicity and cost-effectiveness. For example, results from a large European multisite

observational study (n = 8083) conducted prior to the NICE guideline development found that temperature monitoring was not appropriately undertaken in 81 per cent of patients[5]. Both the Australian and New Zealand College of Anaesthetists and the Royal Australasian College of Surgeons clinical guidelines reflect the recommendations of the NICE guideline[3].

In 2014 a thermal care bundle was developed by a panel of Australian expert clinicians and researchers to improve the prevention, detection and treatment of perioperative hypothermia in adult surgical patients[6,7]. Implementing a thermal care bundle can help rapidly disseminate optimal clinical guidelines for the management of health care–associated illnesses and risks. The bundle elements were selected from the NICE guideline on the management of perioperative hypothermia in adults.

Economics of preventing perioperative hypothermia

In a report soon to be released, the authors will provide a detailed economic analysis on the cost-effectiveness of preventing inadvertent perioperative hypothermia in Australia. Using rigorous up-to-date data, the authors report findings based on a scenario of 80 per cent compliance with guidelines effective for reducing perioperative hypothermia. They found that the total cost of perioperative hypothermia to the Australian health system is $1.26 billion and that preventing perioperative hypothermia has an annual net benefit of:

- $602 million to the Australian health system
- approximately $7085 per patient for major surgery (with an overnight stay) from reducing SSIs alone
- approximately $6560 per patient for minor surgery (with an overnight stay) from reducing SSIs alone.

This report is of significance to all perioperative nurses in Australia as the prevention of hypothermia is often led by nurses and denotes the value of high reliability nursing care. Significantly, the authors recommend that:

- current best practice is adopted ensuring that thermal care is provided to ‘every patient, every time’
- a national multidisciplinary-based policy for preventing and managing perioperative hypothermia is developed
- a definitive clinical trial on perioperative hypothermia is conducted.

With the release of this report expected in the first half of 2019, we encourage all perioperative nurses to take heart in recognising the significant value they provide to the Australian health care system by delivering excellent perioperative care.

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Rebecca East
President

President's report

With the start of 2019 already drifting well into the past as you read this autumn ACORN journal I wonder if our new year's resolutions are still fresh in our minds?

I don't tend to make new year's resolutions but I have recently been working on taking care of myself. The year 2018 was a tough one – not only was it tough for me personally but for many of my colleagues, family and friends. I think as I write we have all been looking forward to a new start in 2019.

Nursing fatigue and burnout is a constantly growing issue not only in perioperative units but in health care worldwide. Only recently, as I sat quietly waiting to perform an after-hours case, I had a catch up with a colleague. He was fatigued. The long weeks of call, after hours cases and challenges that he consistently comes up against every day are wearing him thin. Not to mention the challenges he faces in the outside world, having a young family, sporting commitments, and the list goes on.

The literature recognises that fatigue in the perioperative environment is increasing. I came away from the late evening case questioning if I, as a colleague, was doing anything to improve my own environment, let alone that of my colleagues. ACORN has a standard to guide perioperative units on how to manage fatigue. This standard indicates that it is not only the responsibility of health care facilities to ensure that staff are well rested and safe to attend to their shift, but it also indicates that it is our own responsibility to ensure we are safe to work during our shift[1].

And so I have decided to make a promise to myself to take care of myself in 2019 and beyond. Although our employers are responsible for providing us with a safe work environment, we too are responsible for ourselves and our colleagues. The year 2019 is shaping up to be a fantastic year on so many levels personally and professionally. However, I will not be able to reach all of my goals without taking care of myself in the process.

At our December board meeting the ACORN directors reminded ourselves what it is that we are here for. We now write down at the start of our meetings our vision. ACORN's vision is for patients to receive the safest and highest quality evidence-based perioperative care in the world. The board recognises that for this to occur our perioperative staff need to be well rested and well supported. We want to work with industry to find ways of lightening our load and decreasing the occurrence of fatigue in the perioperative environment. The inaugural ACORN Leadership Summit in Canberra this year will allow our perioperative leaders to discuss these issues nationally and allow ACORN to support them in not only this issue but in wider industry issues. The summit has limited numbers so if you are keen to join us in Canberra for the ACORN Leadership Summit please make sure to get your registration in soon!

While we work in the background to build our voice in the industry, I ask you to promise that you will work on taking care of yourself too. We are responsible for our own health, and though I know it's not always easy, let's be advocates for ourselves and our colleagues. It will allow us to be better advocates for our patients too.

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Change of director

Since the last issue of the journal we have had a change of director. South Australian director, Di Hutt, has left the board after four years – two as representative and two as director. Di was Chair of the Conference Committee that organised the wonderful international conference in Adelaide in 2018. We thank Di for all the time and effort she has put into ACORN.

We welcome Trent Bacthelor as the new South Australian director. Trent is Perioperative Services Manager at Burnside War Memorial Hospital. He attended the face-to-face meeting in Launceston in February where he met the other directors and, with them, participated in the ACORN Tasmania study day.

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Improving antibiotic prescribing for surgical prophylaxis – the role of perioperative nurses

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Surgical site infection is a potential post-surgery risk that needs to be managed effectively as part of good patient care. The discovery of antibiotics in the 20th century and their associated use as surgical antibiotic prophylaxis, often with other interventions such as oxygenation, glycaemic control and surgical antisepsis, has minimised this procedural burden.

However, the global increase in antimicrobial resistance (AMR) is limiting the effectiveness of antibiotics currently available when treating infections and impacting on the delivery of safe and effective care for patients. As a result, many infections are no longer responsive to first line antibiotic choices. The overuse and misuse of antibiotics, wherever this occurs, impacts the efficacy of surgical antibiotic prophylaxis. This, compounded by the decreased antibiotic development pipeline, means that managing an infection is no longer as simple as just selecting 'another antibiotic'.

Due to AMR, complex infections are now being treated with potentially more toxic, costly and complicated regimens than in the past. This creates additional risks for patients, including potentially adverse outcomes from the antibiotics used and increased length of hospital stay due to a lack of oral therapeutic choices. Patients with unnecessary exposure to long courses of antibiotic prophylaxis are also at a higher risk of morbidity and mortality if they develop an infection as it is more likely the organism will be resistant to commonly prescribed antibiotics.

The Australian Commission on Safety and Quality in Health Care (the Commission) coordinates the Antimicrobial Use and Resistance in Australia (AURA) Surveillance System, which provides a range of AMR and antibiotic use surveillance data. AURA also provides a platform for voluntary standardised audits of surgical prophylaxis through the Hospital National Antimicrobial Prescribing Survey (NAPS).

Data from participating hospitals in 2017 showed that 30.5 per cent of surgical prophylaxis prescriptions for inpatients extended 24 hours beyond the time of surgery. This is despite guidelines recommending surgical prophylaxis durations of less than 24 hours. Commonly, surgical antibiotic prophylaxis was found to be too broad or too narrow for the organisms known to cause surgical site infections or to be inconsistent with guidelines (with no indication of patient characteristics that would require variation), or the wrong dose was prescribed.

Variation in surgical antibiotic prophylaxis prescription often occurs because of individual prophylaxis preferences. Despite evidence to the contrary[1,2], the perception that adverse outcomes are reduced with longer and broader spectrum antibiotic intravenous courses still exists. Topical or deep surgical site administration has also been reported.

The increased health care–associated complications of prolonged or novel intra-operative antibiotic use (for example irrigations, pastes or washes) also need to be considered, particularly where the evidence base for alternative practices is limited.

Process issues still account for many variations from guidelines-based practice. Improved standardisation could bring practice more in line with consistent and reliable delivery of antibiotic prophylaxis. There are many opportunities for improvement including:

- consistency in documentation of fixed antibiotic duration
- development of and adherence to evidence or consensus-based guidelines
- optimising administration timing for optimal concentration of antibiotics during the surgical procedure.

The timing of prophylactic antibiotics is crucial, and nurses working in the perioperative setting are well placed to have a significant impact on this aspect of surgical antibiotic prophylaxis. Optimal timing is dependent on the pharmacokinetics of the antibiotic used to optimise tissue concentrations. Vancomycin (and antibiotics with a longer half-life) should be commenced within 120 minutes of knife to skin; the infusion does not have to be completed prior to the commencement of surgery. Vancomycin can cause red man syndrome when administered too quickly in an attempt to finish the infusion prior to knife to skin.

The timing of antibiotic administration also requires logistic coordination of the patient's journey from the ward to the operating suite and from the Post Anaesthesia Care Unit back to the ward. Nurses can also support best practice by promoting documentation of the plan for surgical antibiotic prophylaxis to avoid confusion when the patient returns to the ward. Prolonged administration of intravenous surgical prophylaxis can also increase the risk of a cannula site infection.

Simple changes such as promoting the importance of correct surgical antimicrobial prophylaxis for every procedure could also increase consistent administration and improve choice practices. Clarity regarding the lead in the choice of antibiotic (anaesthetic and surgical specialties) may also aid in more consistent administration practices[3].

Under the National Safety and Quality Health Service (NSQHS) Standards, every hospital is required to have a local antimicrobial stewardship program to optimise use of antimicrobials and improve the use of surgical antimicrobial prophylaxis within hospitals. Nurses are extremely valuable in their participation in multidisciplinary efforts to facilitate audits and feedback procedures or drive dedicated quality improvement projects. The provision of safe and effective care to patients is the ultimate goal. To achieve this, the risks and benefits of antimicrobial use need to be balanced.

The Commission is working with ACORN to provide perioperative nurses with resources to assist in safe antimicrobial use. Go to www.safetyandquality.gov.au/SAP to find out how you can improve surgical antibiotic prophylaxis in your organisation.

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Authors' contributions

BMG conceived of the study, assisted in participant recruitment and drafted the manuscript. BMG and EH performed the quantitative analysis. AM and EH contributed to study conception and assisted in interpretation. TG, JL and TKW assisted in recruitment, participated in the study and assisted in interpretation. All authors participated in the design and coordination of the study and read and approved the final manuscript.

The impact of improved surgical safety checklist participation on OR efficiencies: A pretest-post test analysis

Does improved use of a surgical safety checklist influence OR efficiency?

Abstract

Objective: To describe changes in day of surgery (DOS) cancellations and procedural delays following introduction of a practice improvement intervention to improve team members' participation in the surgical safety checklist (SSC).

Methods: Pretest—posttest electronic audit of secondary data collected 12 months before and 12 months after implementation. A consecutive sample of patients who underwent elective surgeries were included. Elective surgeries over two periods (November 2014 to September 2015, and November 2015 to October 2016) were included in the audit and data was collected retrospectively. The practice improvement intervention coined 'pass the baton' was implemented over four weeks in October 2015.

Results: Across audit periods 33 017 surgical procedures (16 262 pretest and 16 755 posttest) were performed. DOS cancellations between phases totalled 826 with an increase of 112 in the posttest phase with the largest posttest increase being in suite cancellation (increase of 97). Across phases, there were 1508 procedural delays (pretest n=737, posttest n =771), with the most frequent delay being due to staff availability (p=0.577). Pretest procedural delays averaged 38.7 minutes (SD 52.4) and posttest averaged 36.8 minutes (SD 43.2) (p=0.428).

Conclusions: These results suggest no change in clinical efficiencies when the SSC is fully utilised. That is, increased participation in the checklist does not increase delays in surgery. When considering ways to improve clinical efficiency, hospital administrators need to consider skill mix, physical layout of the OR and additional staffing, factors not captured in routine clinical audit data collected.

Introduction

Perioperative services are typically comprised of three phases: preoperative, intra-operative, and post-operative. As a department, perioperative services is one of the most dynamic and complex in a hospital system and generates up to 60 per cent of the total gross revenue[1,2]. Nevertheless, US estimates suggest that they are also one of the costliest departments in any hospital, contributing to more than 40 per cent of its total running costs[1,3], with costs as high as USD $40 per minute[1,2] (2018 AUD estimates $55 per minute). Therefore, efficient management of the service is necessary to minimise increased costs. Loss of information during the patient journey through the department may negatively affect patient flow and reduce clinical efficiency.

'Efficiency' is broadly defined as performance that leads to cost reduction without compromising quality. Thus, efficiency relates to both productivity and quality. In the operating room (OR) context, definitions of efficiency usually focus on time, whereas reductions in time related to a level of output translates into efficiency[4,5]. Efficiency in the OR depends on minimising wasted and unused time to meet projected surgical targets[1]. Numerous factors influence OR efficiencies e.g. surgical scheduling accuracy, on time starts, minimising case cancellations and case turnover times[4].

Research suggests that improved service efficiency depends on the synchronisation of interprofessional communications in the OR department which has a resultant impact on patient flow[6,7]. The intent of the World Health Organization (WHO) surgical safety checklist (SSC) is to improve several 'must do' critical clinical tasks and hence improve the fluency of processes, team communications and operations throughout the patient's perioperative journey. Although not intended to directly improve OR efficiencies, the checklist acts as a memory aid for passing on key information or actions that may otherwise be overlooked or forgotten ensuring timely and consistent communications among surgical teams[8]. Thus, the SSC aids interdisciplinary team communications and coordination of clinical activities. The checklist divides the operation up into three phases – the period before anaesthetic induction (sign-in), the period after induction and before surgical incision (timeout), and the period during and immediately after wound closure but before transferring the patient out of the OR (sign-out)[8].

Despite the WHO SSC having been implemented in over 132 countries world-wide[9], compliance remains a challenge[10–12]. We hypothesised that a theory-based practice improvement intervention aimed at changing clinician behaviour would increase checklist participation and item use and influence OR efficiencies relative to day of surgery (DOS) cancellations and procedural delays. We chose these efficiencies because communication processes may affect them, particularly during the sign-in and sign-out phases of the WHO SSC. To date, few studies have evaluated improvements in WHO SSC use relative to longitudinal changes in these OR efficiencies.

Method

We conducted a pretest—posttest audit of electronic secondary data to describe changes in the numbers of procedural delays and DOS cancellations following implementation of an intervention to improve participation in the WHO SSC. DOS cancellations and delays, regardless of the underlying cause(s), negatively impact on use and consequently on costs[13]. Retrospective audits of an electronic database of surgical information maintained by the hospital occurred over two 12-month periods.

Setting and sample

The study setting was a 750-bed tertiary hospital in Queensland specialising in all surgeries except transplantation. The department has 18 commissioned ORs and performs approximately 16 000 surgeries per year. A consecutive sample of patients undergoing elective surgeries during the periods November 2014 to September 2015 and November 2015 to October 2016, and drawn from the Operating Room Information Management System (ORMIS) database was included. Data for the month of October 2015 was excluded as at this time the process improvement strategy was being implemented across the OR department. Over a four-week period, key stakeholders implemented a process improvement strategy intended to increase staffs' participation in the safety checks of the WHO SSC.

Process improvement strategy

In October 2015, a process improvement intervention coined 'pass the baton' (PTB) was rolled out department-wide with the goal of improving team participation in the locally modified WHO SSC. PTB was nurse-led and developed with input from key stakeholders across nursing, surgery and anaesthetics. Process strategies to promote behaviour changes in WHO SSC participation were delivered over four weeks and included audit and feedback, opinion leaders and change champions, reminders and prompts and formal and informal education. A process evaluation of these strategies is presented elsewhere[14]. The phases in which it was most difficult to maximise staff participation were the sign-in and sign-out phases. Therefore, the PTB intervention specifically involved the allocation of nursing staff to lead the sign-in and sign-out using a deliberate call-and-response format. Implementing changes that address team-based delivery of care have demonstrated not only increases in OR efficiencies[15–17] but also improvements in patient safety[18,19].

Data collection and coding

Electronic data from the ORMIS database of operative times inclusive of in-suite to out of OR times (i.e. in-suite, in anaesthetic, in OR, procedure start, procedure finish, out of OR), procedural delays (type and reason), surgical specialty, and

month and year were extracted for cases of elective surgeries. The original ORMIS data files were given to the lead author as an encrypted Excel file. In the original database, DOS cancellations and delays had multiple codes for similar types and reasons.

We recoded DOS cancellations and procedural delays according to their primary origin, i.e. whether they were related to the organisation/department or to the patient. In the analysis, we excluded DOS cancellations and procedural delays that were patient-related as these were usually out of the control of health care professionals and not influenced by process improvements associated with the use of the WHO SSC. For instance, in relation to DOS cancellations 'failure to attend surgery', 'patient cancelled booking' and 'unfit for surgery' were

Table 1: OR efficacy indicators, their definitions and measures (where applicable)

OR efficiency indicator	Definition	Measurement
First case on time start[4]	Difference between actual time the patient enters OR and the scheduled time for the session.	Time recorded in ORMIS.
Procedural delay[4]	Total delays from late starts (first case 'In OR' time is after the scheduled session start time) and prolonged change-over times (change-over time more than 15 minutes). Reasons for delays relate to the availability of bed, equipment or documents; staffing; and previous case over-run.	Coded according to the primary reason/origin. Categorical variable, numbers summed in each category.
In OR time[5]	Time the patient enters the OR, often referred to as 'wheels in' to OR.	Time recorded in ORMIS.
Procedure start time[2]	The earlier time of either the specific positioning of the patient for surgery or commencement of the skin preparation.	Time recorded in ORMIS.
In OR time ('wheels in') to procedure start time[4,5]	Time the patient enters the OR from either the induction room or main reception area until the time the patient is either positioned or has been prepped and draped for surgery. This period includes anaesthetic induction process.	Measured in minutes.
Procedure finish time[5]	Time when all the instruments and sponge counts are completed and verified as correct, all post-operative radiological studies to be done in the OR are completed, all dressings and drains are secured, and the surgeon(s) have completed all procedure-related activities on the patient.	Time recorded in ORMIS.
Out of OR time[5]	Time the patient leaves the OR, often referred to as 'wheels out' of OR.	Time recorded in ORMIS.
Procedure finish time to out of OR time ('wheels out')[4,5]	Time from application of the final incision dressing, to when the patient leaves the OR for transfer to the PACU.	Measured in minutes.
Elective day of surgery cancellation[4]	Unanticipated cancellation of elective surgery due to either patient or hospital-initiated factors.	Coded according to the primary reason/origin. Categorical variable, numbers summed in each category.

Note: OR = operating room, ORMIS = Operating Room Management Information System, PACU = Post Anaesthesia Care Unit

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excluded in the analysis. In terms of procedural delays, 'patient condition', 'disaster plan activity', and 'radiology unavailable' were also excluded from the analysis. DOS cancellations were recoded according to type (within 24 hours or in-suite) and reason (bed/equipment/documentation unavailable, staff unavailable, list re-arranged). Procedural delays were recoded relative to their primary origin: bed, equipment or documentation unavailable; staff unavailable or list re-arranged. Table 1 details the OR efficiency indicators that guided this study, their definitions and measurement (where applicable).

Analysis

We cleaned and analysed the data using the Statistical Package for Social Sciences (SPSS; V.24, IBM, NY, New York, USA), and checked a random sample of 20 per cent for accuracy. Descriptive statistics using absolute (n) and relative frequencies (per cent) or means and standard deviations (SD) were used appropriate to the level of data. For categorical data, comparisons between phases relative to type and reason for DOS cancellation and procedural delay, and surgical specialty were analysed using the Chi squared (χ^2) statistic. Independent sample t-tests were used to compare overall time differences (in minutes) for each surgical specialty over pretest and posttest phases. We used 95 per cent confidence intervals (CI) and considered p-values of < 0.05 significant.

Ethics

Ethics approval was given by Griffith University (NRS/06/14/HREC) and the Gold Coast University (HREC/13/QGC/154) Human Research Ethics committees. Following ethics approval for the main study, we sought permission to obtain

Table 2: DOS cancellations pre- and post-implementation

	Pre-implementation Oct 2014 – Sep 2015 n (%)	Post-implementation Nov 2015 – Oct 2016 n (%)	χ^2 (*p* value)
Number of hospital cases	**16 262 (49.3)**	**16 755 (50.7)**	
Cancellation type			4.7 (0.030)
Cancelled within 24 hours	184 (51.5)	206 (43.9)	
Cancelled 'in suite'	173 (48.5)	263 (56.1)	
Total DOS cancellations	357	469	
Total cancellations			826
Cancellation reason			1.2 (0.560)
Bed/equip/documentation unavailable	258 (72.3)	332 (70.8)	
Staff unavailable	31 (8.7)	35 (7.5)	
List re-arranged	68 (19.0)	102 (21.7)	
Speciality			15.2 (0.076)
Obstetrics and gynaecology	25 (7.0)	55 (11.7)	
Max facial/ENT/plastics^	61 (17.1)	67 (14.3)	
Orthopaedics	51 (14.3)	99 (21.1)	
Urology	32 (9.0)	39 (8.3)	
General	36 (10.1)	45 (9.6)	
Neurosurgery	36 (10.1)	43 (9.2)	
Ophthalmic	23 (6.4)	24 (5.1)	
Paediatrics	2 (0.6)	4 (0.9)	
Cardiothoracic	56 (15.7)	60 (12.8)	
Vascular	35 (9.8)	33 (7.0)	

Note: ^ covers facio/maxillary, ear, nose and throat, dentistry and plastic surgery.

de-identified ORMIS data from the director-general, Queensland Health, as required by the Public Health Act (2005).

Results

Over audit periods, 33 017 surgical procedures were performed (16 262 pretest, 16 755 posttest), representing an increase of 493 in the posttest period. Table 2 shows results for DOS cancellations according to type and reason for cancellation. DOS cancellations between phases totalled 826, representing an increase of 112 in the posttest phase. However, there were significant (p=0.029) differences between phases relative to each type of cancellation (i.e. within 24 hours compared to in-suite). Across phases, a lack of bed, equipment or documentation was the most predominant reason for DOS cancellation. Over each audit period, the highest number of cancellations occurred in orthopaedic surgery (n =150/826, 34.9 per cent; pretest n=51/357, 14.2 per cent; posttest n=99/469, 21.1 per cent) and the fewest in paediatric surgery (n =6/826, 0.72 per cent; pretest n=2/357, 0.56 per cent; posttest n=4/469, 0.85 per cent).

Figure 1 illustrates longitudinally the frequencies of procedural delays relative to bed, equipment or documentation availability; staffing availability, and prior case over-runs for each month over pretest and posttest phases. Across phases, there were 1508 procedural delays (pretest n=737, posttest n =771), with the most frequent delays being related to staff availability; however, this was not significant ($\chi 2$ =1.10 p=0.577).

Overall, the mean procedural delay (in minutes) pretest was 38.7 minutes (SD 52.4), and posttest was 36.8 minutes (SD 43.2). These results were not significant (t=0.79, df 1506, p=0.428).

Table 3 displays the pretest–posttest results relative to times from in OR to procedure start and procedure finish to out of OR. Relative to in OR to procedure start, there were significant pretest–posttest time differences (minutes) in two out of ten specialties (maxillary facial/ENT/plastics, paediatrics). In relation to procedure finish to out of OR times, there were significant pretest–posttest time differences (minutes) in four out of ten specialties (obstetrics and gynaecology, maxillary facial/ENT/plastics, paediatrics, cardiothoracic).

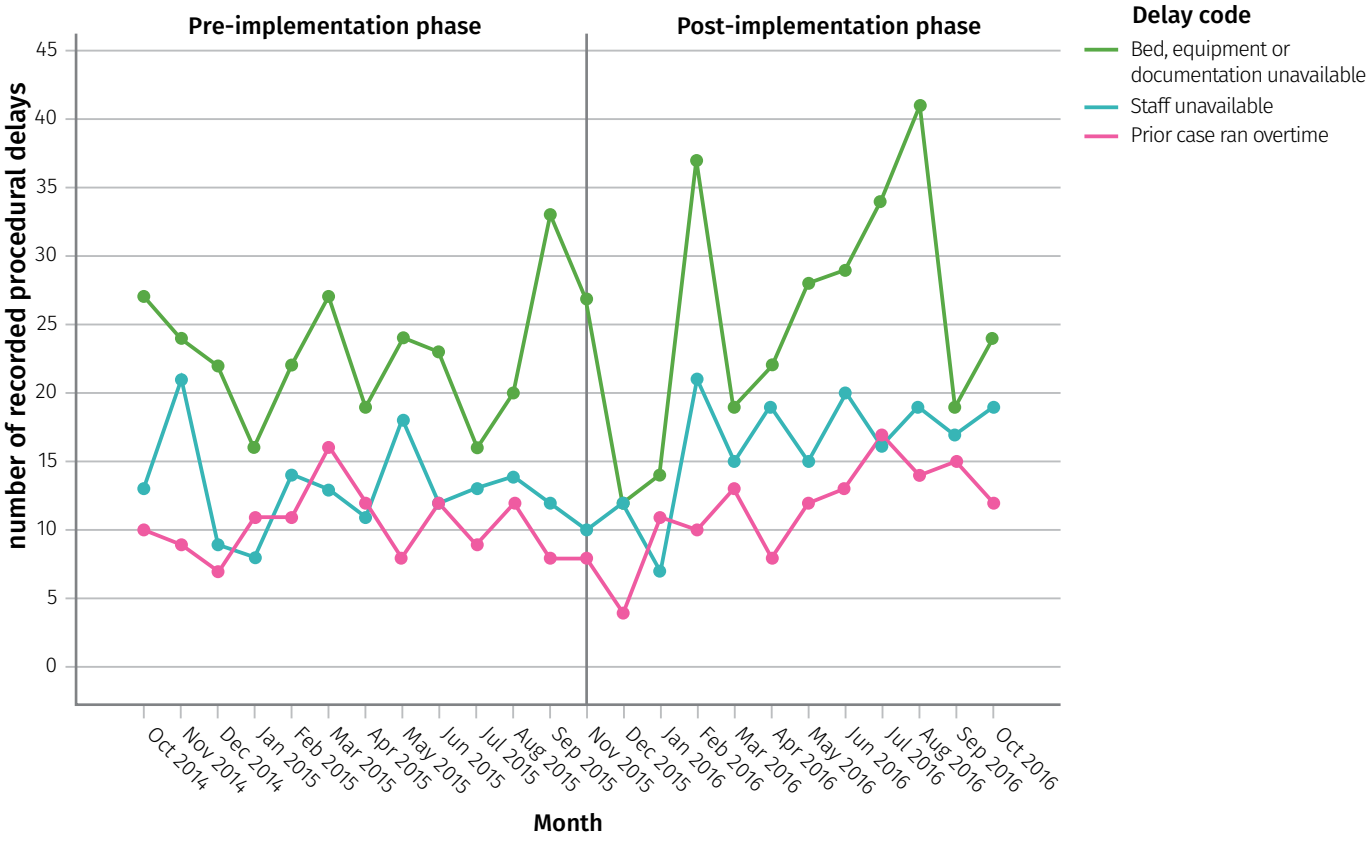

Figure 1: Types of delays relative to bed/equipment/documentation, staffing and prior case over-runs in pre- and post-implementation periods over month

Table 3: Pretest–posttest results for times from in OR to procedure start and procedure finish to out of OR

Speciality	Pre-implementation n	Post-implementation n	t	df	Mean difference	Std error difference	95% confidence interval of the difference	
							Lower	Upper
Time from in OR to procedure start								
Obstetrics and gynaecology	1838	1882	0.18	3718	0:00:04	0:00:26	-0:00:46	0:00:55
Max facial/ENT/plastics^	1931	1948	-4.36	3705.3	-0:02:38	0:00:36	-0:03:50	-0:01:27
Orthopaedics	1971	2185	0.28	4154	0:00:06	0:00:23	-0:00:39	0:00:52
Urology	2451	2461	-0.69	4910	-0:00:12	0:00:18	-0:00:49	0:00:23
General	1152	1140	-1.46	2290	-0:01:03	0:00:43	-0:02:29	0:00:21
Neurology	359	392	1.96	683.7	0:02:55	0:01:29	-0:00:00	0:05:50
Ophthalmic	1913	1977	-0.92	3888	-0:00:13	0:00:15	-0:00:43	0:00:15
Paediatrics	400	429	-5.27	711.5	-0:04:09	0:00:47	-0:05:42	-0:02:36
Cardiothoracic	384	384	0.32	766	0:00:39	0:02:05	-0:03:26	0:04:46
Vascular	392	363	-0.54	753	-0:00:46	0:01:26	-0:03:35	0:02:03
Time from procedure finish to out of OR								
Obstetrics and gynaecology	1838	1882	-2.44	3608.7	-0:01:39	0:00:40	-0:02:59	-0:00:19
Max facial/ENT/plastics^	1933	1951	-3.35	3547.0	-0:04:55	0:01:28	-0:07:48	-0:02:02
Orthopaedics	1972	2185	-2.17	3997.0	-0:01:39	0:00:46	-0:03:10	-0:00:09
Urology	2452	2462	1.42	4874.1	0:00:48	0:00:34	-0:00:18	0:01:55
General	1152	1141	-0.24	2291	-0:00:20	0:01:27	-0:03:11	0:02:30
Neurology	359	393	1.14	750	0:03:13	0:02:50	-0:02:20	0:08:47
Ophthalmic	1913	1977	1.99	3870.6	0:00:50	0:00:25	0:00:00	0:01:39
Paediatrics	400	429	-4.37	801.3	-0:02:44	0:00:37	-0:03:58	-0:01:30
Cardiothoracic	384	385	2.05	605.2	0:05:10	0:02:31	0:00:13	0:10:08
Vascular	392	364	-0.19	754	-0:00:30	0:02:35	-0:05:35	0:04:35

Notes:
Time difference is displayed in h:mm:ss.
Some degrees of freedom (df) have decimals because Levene's test was violated so 'equal variances not assumed' data used.
^ covers facio/maxillary, ear, nose and throat, dentistry and plastic surgery.

Figure 2 depicts longitudinally the pretest and posttest means (in minutes) for all specialties combined relative to time from in OR to procedure start. The results vary across both phases but there is a notable spike in the posttest period for the months of December and March. Figure 3 shows longitudinally, the pretest and posttest means (in minutes) for all specialties combined relative to time from procedure finish to out of OR. In the pre-implementation phase there were drops in February, June and September.

Discussion

Few studies have used longitudinal efficiency indicators to measure the impact of theory-based process improvement strategies on DOS cancellations and procedural delays across an entire OR department. The benefit of the checklist on patient outcomes, safety related practices and clinical processes are well researched[20–23]. There were no significant differences in clinical efficiencies despite observed improvements in checklist items coverage and participation post-implementation of PTB (acknowledging that the SCC was not fully utilised)[24]. Clearly, improvements in using the checklist do not translate into increased efficiencies. Still, our results suggest that increased participation in the WHO SSC does not negatively impact on OR efficiency. That is, active team participation does not increase the time taken to complete clinical activities. Many staff were concerned that implementation of PTB needed extra time and would reduce their ability to complete elective case lists on time[25]. Previous research suggests that improvements in interdisciplinary communication reduces procedural delays[7,26,27]. Nonetheless, some of these studies used self-reported survey data or had short follow-up periods[26,27].

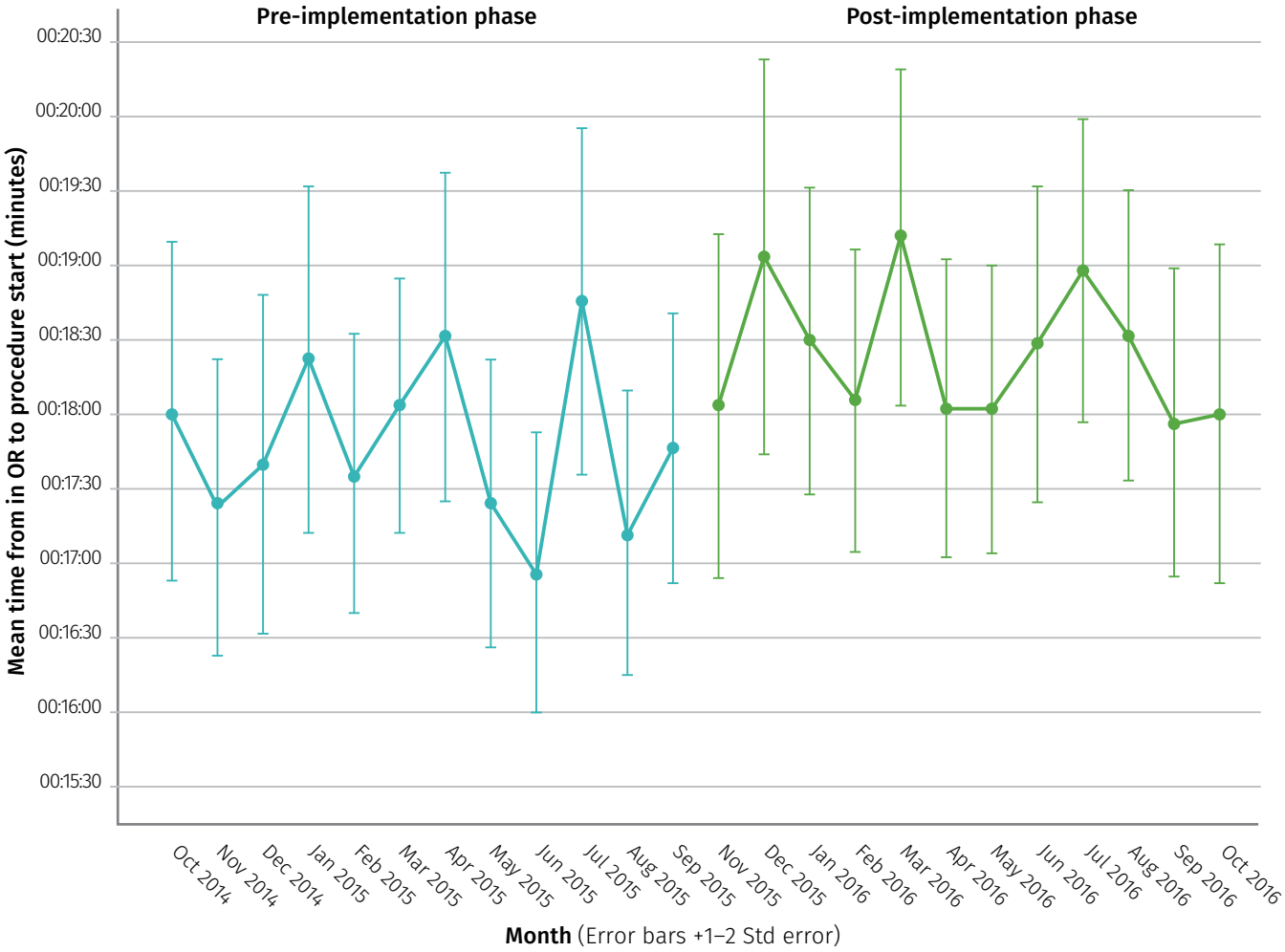

Figure 2: Time from in OR to procedure start (in minutes) pre- and post-implementation periods over month

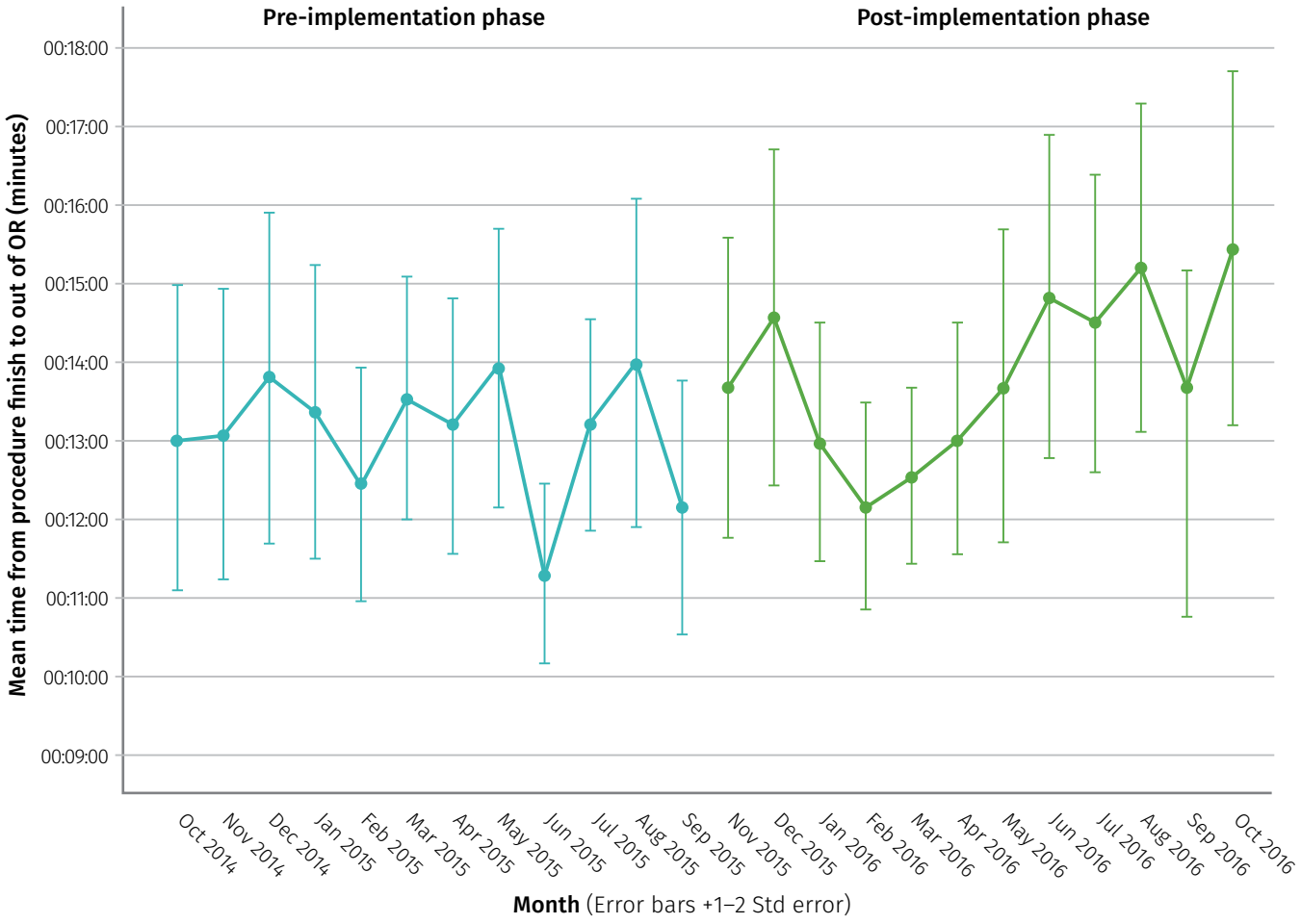

Figure 3: Time from procedure finish to out of OR (in minutes) in pre- and post-implementation periods over month

Therefore their findings need to be considered relative to these limitations.

Our results indicate increases across most specialties for total DOS cancellations (Table 2). The increase in 'in-suite' cancellations during the posttest period suggest that clinical/case-related discrepancies may not have been identified until after the patient was received into the department. The main reason for DOS cancellation related to bed or equipment availability. We suggest there are a couple of contributing factors. Firstly, for obstetric procedures, the availability of a 'dedicated' emergency obstetric theatre during weekdays (8.00 am to 5.00 pm) is not always guaranteed at the study hospital. Priority is always given to emergency Caesarean sections (categories 2–4), resulting in the cancellation and rescheduling of DOS elective (booked) C-sections. Second, maxillary facial/ENT/plastics and orthopaedic cases involving implantable prosthetic components (e.g. total hip/knee replacement surgeries) relies on having the appropriate range and sizes of prosthetics available. The check-in phase of the WHO SCC has an item covering equipment and instrument availability. It may be that increased communication at this time identified a problem with availability and averted a situation when patients were anaesthetised without having the equipment on hand. Plausibly this may demonstrate that team members are communicating the necessary pre-checks and lessening the risk of unnecessary or prolonged anaesthesia time thereby increasing patient safety.

The duration of procedural delays actually decreased despite an increase in the number of surgical procedures performed during the posttest period. The results of other research in this area also suggests modest to moderate improvements in procedural delays following teamwork initiatives[17,25,26]. For instance, Wolf et al.[26] and Nundy et al.[27] reported reductions of 13 per cent to 31 per cent in procedural delays following the implementation of briefings and debriefings. Clearly, improvements in communication, teamwork and planning are the

drivers behind how checklist briefings reduce procedural delays[27]. Paradoxically in our study, four out of ten specialties showed increases in time delays (Table 3). Generally, procedures in these specialties had shorter operative times, were less technically complex and involved younger patient cohorts.

Our results suggest that staff availability was the most common cause of procedural delays across both periods (Figure 1). This result is somewhat concerning. This type of delay is potentially disruptive to workflow and impinges on the quality and work environment of surgery. Staffing issues are often associated with safety because improved efficiency and capacity mean that more operations are performed during the daytime when back up personnel are readily available. Fewer surgeries are performed at night when skeleton teams who may be unfamiliar with each other are more likely to work together[26,27]. Changes to staffing over time are inevitable in any health care setting. Over the two-year audit period there were changes in staffing with seasonal influxes or attrition of staff occurring throughout the year. Further, increases in the number and complexity of surgical cases in the posttest period meant that staff workloads necessarily increased leading to additional staff being hired. Many of these new staff needed training and upskilling in unfamiliar surgical specialties and so were often on a steep learning curve.

Saving time (as a measure of efficiency) in the OR does not necessarily lead to increased efficiency[28]. PTB was implemented as a driver to enable change in practice and process when executing the checklist[14,24]. Yet strategies that target changes in practice (i.e. those that are behavioural in nature) are not in themselves sufficient to achieve improvements in clinical efficiencies. Implementation of PTB aimed to simplify the checking process through addressing behavioural and contextual factors that contributed to limited use of the SSC[14,24]. Yet to achieve sustainable improvements in efficiencies, structural interventions such as parallel processing, physical layout of the OR and additional staffing should be considered. At the intervention hospital, the layout of the new state-of-the-art OR department (commissioned in September 2013), which was spread out along two long corridors, impacted on workflow and therefore patient care because of the distance needed to travel to fetch equipment and instruments. In relation to staffing, with the appropriate skill mix it is possible to perform work tasks in parallel to increase efficiency and maximise the work capacity of members[29]. The hospital site in this study is a teaching facility so relies on a trainee workforce with varying degrees of clinical experience and expertise; therefore, it is not always feasible to undertake clinical tasks in this manner. Workforce issues can have a profound bearing on performance of OR efficiencies. However, relative to clinical performance metrics, factors such as workforce and physical layout are unable to be captured.

Limitations

We acknowledge some limitations, so there are caveats in the interpretation of these results. Firstly, the use of a single hospital site may limit the extent to which results can be generalised. Secondly, ORMIS data may be subject to errors in coding, leading to misclassification. Where there were discrepancies, the lead author followed up with coding staff to clarify. Also, the accuracy of the times entered depends on the ability of staff to enter these times in the ORMIS system as they occur. Clearly there will be occasions where clinical activities take priority, potentially reducing the accuracy of these data. Thirdly, these analyses are based on selected factors identified at the departmental level, thus patient-related factors were not included and may have contributed to OR efficiencies. Nonetheless, these factors were largely outside the control of the department or organisation, hence their exclusion. Fourthly, departmental factors (e.g. staff turnover and training requirements, increased workload and the addition of new procedures) could not be accounted for. Such factors may also influence performance but could not be captured in the audit data. Finally, while PTB was implemented department-wide, not all teams consistently participated. Prior to analysis, it was impossible to delineate particular cases (and exclude them) where there was patchy or limited use of PTB. Despite these limitations, these longitudinal analyses showed trends relative to the types of delays that occurred (i.e. bed, equipment or documentation availability; staff availability, case over-run) and seasonal variations in wheels-in and wheels-out times across surgical specialties. Thus, these results may help to identify areas of process efficiency and areas for improvement.

Implications for perioperative nursing

Our study shows no change in health services performance when the surgical safety checklist is fully utilised. The primary intent of the checklist is to improve team performance vis-à-vis communication among surgical teams rather than clinical efficiencies. Contrary to long-held beliefs, performing the checks as a team-based activity does not decrease clinical efficiencies. Clearly

contextual factors have a bearing on performance. Therefore, hospital administrators need to also consider the interplay of environmental and operational factors not currently measured as part of clinical efficiencies.

Competing interests

The authors declare that they have no competing interests.

Funding statement

BMG was supported by a National Health and Medical Research Council (NHMRC) Translation into Practice (TRIP) Fellowship and the Australian College of Perioperative Nurses (ACORN) Research grant.

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Perioperative nurses' perceptions of cross-training: A qualitative descriptive study

Abstract

Purpose: To investigate the perceptions of perioperative nurses regarding the use and impact of cross-training in the perioperative department.

Participants and setting: Scrub and scout perioperative nurses (n=8) who had completed a one-day recovery room cross-training program in a large tertiary private health care organisation in Western Australia.

Method: One-to-one, semi-structured interviews of perioperative scrub–scout nurses.

Findings: The participants perceived the positive aspects of cross-training were teamwork, professional satisfaction and added value to patient care. The aspects that inhibited participants from learning or taking part in the cross-training program were staffing issues, lack of confidence and burnout.

Conclusion: Cross-training supported effective staffing and quality patient care; however, training needs to be protected from disruption to ensure participants develop confidence and competence in the new areas contributing to workforce satisfaction, retention and patient safety.

Keywords Cross-training, perioperative nursing, teamwork, professional satisfaction, professional development, program development

Perioperative nurse work hours are increasing in the context of reduced staff numbers and increased workload[1]. In this context, challenges can arise with organisational staff retention and turnover[2]. In addition, replacement of an ageing population of experienced perioperative nurses may be difficult[2,3,4]. Development of strategies to potentially increase efficiency and reduce nursing shortages is essential for the sustainable delivery of health care in Australia[1,2].

Cross-training is one such educational strategy aimed at improving teamwork and quality patient care. First described by Volpe et al.[5], cross-training is a method used to educate and train individuals across multiple role responsibilities to improve teamwork and work flow. Originating in aviation and adapted to perioperative nursing, cross-training has been described as an approach to facilitate management and utilisation of staff[6]. Nurses with a diverse perioperative skillset can be deployed in multiple roles in recognition of dynamic team needs and the provision of more effective, collaborative and efficient team support[7].

Cross-training facilitates the professional development of perioperative nurses in the roles and responsibilities of the scrub, scout, recovery or anaesthetic nursing roles[6]. In aviation, cross-training was observed to support effective teamwork and improved communication between team members and consequently their performance[5]. In nursing, cross-training has been shown to improve staff–patient ratios, decrease

overtime through the ability to share staff across units, and increase staff satisfaction by fostering a greater sense of teamwork[8]. Masson and Fain[9] highlight how cross-training programs were effective in developing staff member's capabilities and had the potential to assist with managing low staffing levels.

In Australia, the literature on nurses' perceptions of cross-training in tertiary hospitals is limited. A research project conducted in rural Queensland explored the role of perioperative nurses (n=12) and described their common experiences[10]. Cross-trained nurses were expected to perform in all aspects of the perioperative process from admission through to recovery. Although most staff enjoyed the challenge and holistic approach of cross-training, they also indicated the practice impacted their ability to deliver care. This multi-skill training was deemed necessary as rural nurses were often required to perform duties perceived as outside their scope of practice when adequate staff and services were not available and as a result of high staffing levels in comparison to low patient numbers[10].

Teamwork is vital for the delivery of safe and effective care and must be embedded in an organisation's culture and workforce training. Solutions for improving teamwork highlight the importance of cohesion and adaptability as necessary for improvement[11,12]. These two skills are directly related to cross-training. Volpe et al.[5] described cross-training as a mechanism to provide each team member with insight into another team member's responsibilities. This quantitative research explored the effects of cross-training on team functioning in aviation students (n=122) who were randomly assigned to training conditions that involved cross-trained teams and those that did not. The results indicated those who were exposed to cross-training demonstrated more effective teamwork communication and performance[5]. A study by Masson and Fain[9] indicated cross-training facilitated staff members' ability to manage low staffing levels by the movement of nurses throughout the perioperative process. Inman et al.[13] suggested that cross-training reduced the need for nursing overtime hours and agency staff. Cross-training may achieve this by supporting a more flexible workforce that uses cross-trained nurses in all perioperative areas during the shift to accommodate for high and low patient activity and to compensate for staffing shortages. Similarly, Kuthan[14] concluded that cross-training allowed for more efficient distribution of staff by sharing nurses across areas of need throughout the working day.

Nurse retention and absenteeism remain major concerns for the health care industry. Although the positive influence of cross-training on teamwork, team functioning and staff utilisation has been demonstrated, there is a lack of data surrounding nurse satisfaction and the emotional impact of cross-training. A quality improvement project by Ballou et al.[6] showed cross-training contributed to greater work satisfaction in teamwork and that nurses who engaged in challenging and innovative roles demonstrated greater adaptability and flexibility. Thus, the significance of this study was to explore the perceptions of cross-trained perioperative nurses and the impact on staff satisfaction and teamwork within a large tertiary private health care organisation.

Perioperative cross-training has been reported to improve staff shortages and maldistribution of nurses by moving trained staff from areas of low to high activity to support the workload[6]. However, there is limited understanding of team members' perceptions of cross-training and its influence on staff retention. Following the redevelopment of a large private tertiary health care organisation in Western Australia (WA), the number of operating rooms increased from ten to sixteen. This planned expansion of services required the recruitment of additional scrub–scout, anaesthetic and recovery room nurses to the existing pool of nursing staff. The highly specialised nature of pre-, intra- and post-operative patient care occurs in isolation to other nursing specialty areas[6]. This requirement for specially trained staff and associated perioperative staff shortages leads to challenges in managing safe staffing levels[13,15].

Staffing issues caused by absence from sickness and leave, is affected by the lack of suitably skilled perioperative nurses available to work at short notice. This leads to an over-reliance on agency or casual nurses or the expectation for permanent perioperative nurses to work overtime. These staffing difficulties significantly impact teamwork through poor communication, low morale and negative effects on the ability to work as cohesive teams and thus provide safe care[13,14].

A report on future health workforce requirements identified nursing as a significant area of concern primarily related to low retention and recruitment rates and an ageing nursing workforce[2]. The impact of staff attrition and absenteeism on the health care industry directly affects patient safety, productivity and workload[16]. The perioperative area consists of numerous sub-specialties that require intensive training and the negative effect of staff absenteeism is keenly

felt[17]. Absenteeism can result in obstructed perioperative patient flow between areas, ineffective communication, poor teamwork, staff dissatisfaction and an increased risk of documentation and clinical errors[18]. Such concerns associated with nursing shortages and maldistribution of nurses have led to the implementation of innovative strategies such as cross-training to manage these situations[16].

In response to these issues, a one-day cross-training program was developed by the organisation's education department in collaboration with the perioperative nurse educator. The program content was based on the National Safety and Quality Health Service (NSQHS)[19] and the Australian College of Perioperative Nurses (ACORN)[20] standards and organisational policies and incorporated theoretical learning with supporting literature and supernumerary time in the recovery room. The purpose of this study was to investigate the perceptions of perioperative nurses regarding the use and impact of cross-training in the perioperative department.

Methods

A qualitative descriptive design was used to describe the attitudes and beliefs of perioperative nursing staff in relation to their experience of cross-training. Semi-structured interviews were used to elicit descriptions from perioperative nurses who had attended the cross-training program.

Setting and sample

The study was undertaken in the perioperative department of a large tertiary, private health care organisation in WA. A purposive sample of perioperative nurses (n=8) was selected from a cohort of 30 nurses who had participated in the recovery cross-training program.

Theme 1: Enablers of cross-training	Theme 2: Barriers to cross-training
Sub-themes: • teamwork • professional development and satisfaction • added value to patient care	Sub-themes: • staffing issues • comfort zone and confidence • burnout

Data collection

Semi-structured, one-to-one interviews were conducted at a mutually convenient time and location. Each participant received an information sheet and written consent form. Interviews were digitally recorded and transcribed verbatim by a transcription service.

Data analysis

The qualitative data analysis process was guided by the six phases of thematic analysis described by Braun and Clarke[21]. Analysis began with familiarisation of transcripts and review for accuracy, which allowed for data immersion to search for meanings and patterns. The transcripts were categorised using NVivo 10 software[22] where a 'bottom-up' approach was used to identify themes. Once organised into meaningful groups, the overarching themes were identified with their associated sub-themes and named to illustrate the analysis[21].

Limitations

This study was limited to a small cohort of participants in one hospital within a large, tertiary private health care organisation in WA. It is possible that differences between public and private tertiary perioperative departments may affect the relevance of findings.

Findings

All participants were female; half (50%, n=4) were aged between 40 and 49 years of age. Experience in the perioperative specialty was equally divided between 11 to 30 years (50%, n=4) and 0 to 10 years (50%, n=4). Two overarching themes were identified: 'enablers of cross-training' and 'barriers to cross-training'.

Theme 1: Enablers

This theme represented the perceived benefits and positive outcomes of cross-training. The participants' viewpoints centred on the positive training aspects and the subsequent influence on the work environment. The following subthemes were identified:

- teamwork
- professional development and satisfaction
- added value to patient care.

Subtheme 1.1: Teamwork

The positive impact of teamwork was explained by one of the participants: 'Each department's not isolated; they're definitely interconnected'. Participants described how cross-training led to a sense of unity between the recovery and scrub–scout departments as individuals were 'able to tell what the other team members need and how you can help them'. Furthermore, cross-training programs were viewed as encouraging mutual collegial support: 'So, we could relieve each other for tea, lunch... so that helps with workflow'.

The program also enabled participants to develop a greater understanding of their team members: 'You can sympathise with them because you know'. It was evident that participants felt there had been an improvement in teamwork as a result of engaging in the cross-training program. This was summarised by one participant: 'Because we know, we are able to help each other' and 'I am a more versatile team member'.

Subtheme 1.2: Professional development and satisfaction

Participants who engaged in the cross-training program recognised they had a learning deficit in the area of recovery. Thus, the expansion of new knowledge and skills to fulfil responsibility to professional development was a key goal: 'It gives me a greater understanding and also able to educate and inform other colleagues about those specialties as well'. Participants believed they had increased their capability and flexibility to meet standards for practice: 'I am a more versatile team member, able to educate my colleagues and keep up my skill mix'.

Cross-training also provided a sense of professional satisfaction at the completion of the program. It was evident that participants felt proud of their initiative, new skills and confidence in another area of nursing. This was best explained by one participant: 'I can do recovery, I feel like I have more job satisfaction than just being a scrub–scout' and another stated on completion of the program 'I could provide better quality patient care and felt more personally and professionally fulfilled … knowledge, it's rewarding'.

Subtheme 1.3: Added value to patient care

Participants considered their contribution to patient safety and quality care as a personal responsibility to improve their own clinical skills. One participant explained: 'Although it is good to have experts in specialties, it is everyone's responsibility to learn all aspects of the perioperative process and have an awareness of every part of the chain'. When participants were trained, they believed they were able to play a greater role in ensuring their patients remained safe. This was emphasised by one participant: 'the more skills you have, the better and more confident you are in your work and the more you can do, the more you care for the patient and the patient has better outcomes'.

Participants commented on how cross-training provided a holistic view of the patients' journey specifically through the intra-operative and post-operative processes. As a result, participants were able to seek improved outcomes for the patient. One participant shared that she was able to 'take into consideration the patient on the table when you see them in recovery' which gave a 'greater understanding of the outcomes of what you're doing'. Also, participants highlighted how their clinical handover to recovery room nurses had changed, because they were more aware of what information was required in order to provide the best care for the patient. One participant noted: 'I do cater my handover for recovery, because I now know what they need to know' and another participant suggested that she gained a 'broader understanding of the care required for the patient'.

Theme 2: Barriers to cross-training

The barriers were represented by the perceived factors that inhibited participants from learning or taking part in the cross-training program. The subthemes were:

- staffing issues
- comfort zone and confidence
- burnout.

Subtheme 2.1: Staffing issues

Staffing issues were frequently described by the participants. The insufficient staffing levels during training impacted the length and quality of their experience. Some participants reported that as a result other colleagues were not able to participate in the program. One participant was emphatic: 'If the staffing isn't right then you might get pulled from the program'. This aspect had a significant influence on participants' learning and negatively impacted their confidence at the completion of the program: 'The content was good, but I still don't feel confident to be put into recovery'.

The length of the program and limited exposure to a variety of patients was influenced by available staff, which affected participant's consolidation of theory to practice. One participant commented: 'The main complaint for people is that they haven't been allocated the correct amount of time in there to consolidate, then those people don't feel comfortable to go back or just won't go back'. This lack of time to consolidate learning reduced their desire to use their skills in recovery. This was succinctly summarised by one participant: 'The time allocated to supernumerary wasn't enough, so the experience wasn't worth a lot and I feel more apprehensive about being in recovery than before'.

Subtheme 2.2: Comfort zone and confidence

The desire to stay in a familiar environment was a key factor in the reluctance of nurses to engage in cross-training. This was articulated by a participant: 'They have been in their roles for a long time, they know what they're doing and they're good at it, and getting out of your comfort zone is uncomfortable'. Confidence was directly linked to this key factor along with the time allocated to program learning and consolidation. Despite the desire to work in recovery, the time assigned to program content was insufficient to build their confidence and comfort as noted by this participant: 'I found the content good, and I think it has helped, but I still do not feel confident to be put into recovery'. Furthermore, participants identified the time between training and working in recovery also had an influence on confidence: 'The longer the time since being in recovery, it's just really daunting, I think the skill isn't gone but the confidence with your skill is gone'. Another participant identified how staff were ambivalent about learning another role: 'Some don't see the bigger picture of the entire department' and a commonly heard expression was 'that's not my job'. One participant summarised reluctance to move from comfort zones: 'I think … when they don't know, everything is hard until you learn it'.

Subtheme 2.3: Burnout

Participants were concerned that after completing cross-training they would be made to work in recovery at the end of their operating list which would potentially lead to an increased workload. One participant noted: 'If you get downtime, and then you're moved to the next busiest area, there's probably a risk of burnout'. Another participant emphasised this concern: 'If you finish early and then you're straight into recovery and then that's really busy, too, then people will probably get tired'. Other participants were concerned that those who had done the training would be expected to work longer than others. This was highlighted by another participant: 'By doing the program, it might mean that you will end up going into recovery all the time, and those who haven't done the course get to go home'. Another stated how being moved around impacted on time off from work: 'It's about efficiency and moving the staff round, I think people will get quite exhausted that they're just busy … whereas that downtime is sometimes important for people'.

Discussion

Perioperative nursing is a multifaceted nursing specialty and in the current health care climate of financial constraints, creative and flexible staffing solutions are necessary. The benefits of perioperative nurses with additional skills for specialised areas has been highlighted as a cost-effective strategy[14,16]. Cross-training addresses the requirements of each area through allocation of staff to areas of deficit to ensure effective staff utilisation[6]. In addition, the importance of proactive planning for ongoing cost containment and retention of nursing staff occurs with a focus on patient-centred care.

The worldwide improvement in health outcomes and expansion of health services and technology are related to decreasing mortality rates leading to an ageing population[23]. At the same time, health care services are operating in a fiscally constrained environment[24]. Tertiary hospitals are expanding their surgical services to meet community needs, with increased surgical volume corresponding to increases in recruitment and education of perioperative nursing staff. Brooks, Hinck, Johnson, Kelly and Doerner suggested the implementation of a cross-training plan ensured registered nurses were able to adapt to the growth of the service[16]. Similarly, Delaney[25] recognised cross-training as a strategy that extended the capacity of nursing staff and was influential in reducing the health care organisation's costs.

Flexibility is a highly desirable trait of perioperative nurses[10,26]. By expanding each nurse's scope of practice, expertise is fully utilised and able to ebb and flow around health service provision and financial limitations[25,27,28]. In the intensive care environment cross-training has served the needs of the organisation's bed occupancy by maintaining patient flow and retention of nurses[8,29]. Additionally, cross-training reduces the use of costly agency nurses and thus supports retention of permanently employed nurses[13].

Retention of nurses is frequently associated with job satisfaction[30] and consequences of cross-training were increased confidence and role satisfaction[6,31]. In addition, professional growth through additional study and practice provided evidence necessary to pursue promotional opportunities[32]. In extending perioperative nurses' scope of practice across all roles and areas, nurses gained a comprehensive view of the patient journey with specific support at the point of care[24,33]. Kuthan et al.[14] described the benefits of a patient-centred care model where nurses accompanied patients on their surgical journey and provided specialty care from perioperative admission to discharge. Similarly, Bindon[34] observed nurses who continued to develop their ongoing competence were more able to

provide safe patient-centred care, therefore making a greater contribution to perioperative practice and excellence in nursing care.

In supporting the immersion of nurses into other subspecialties, cross-training increases familiarity with colleagues with whom nurses would otherwise have limited contact. According to Volpe et al.[5] one key goal of cross-training was to gain a solid appreciation for another's tasks and responsibilities. This was described as being 'connected' in addition to an acknowledgment of each other's contribution, leading to more intimate teamwork. In turn, being connected fostered a more overall positive work culture. This connection is significant to effective communication which subsequently impacts on positive patient and nurse relationships[14].

Successful implementation of cross-training requires role-specific content and a well-constructed program, conversely, poor planning and execution can lead to frustration and financial loss for nurses' and organisations[6,16]. This study identified the lack of supernumerary time as a barrier to successful completion of the training. The benefits cannot be realised without employers' commitment to the release of staff for training and support for supernumerary time to allow for consolidation of practice[35,36]

Nurses are known to resist allocation to unfamiliar areas[37]. Participants in this study expressed that cross-training took them out of their comfort zone – they viewed cross-training as a challenging concept that was difficult to envisage and required a step into the unknown. Mouradijan and Stengel[38] reported when perioperative nurses were moved into a new area of perianaesthesia where after a structured training process their initial fears were resolved with the growth of confidence. Additionally, the rewards of meeting such a challenge 'head on' were described as a deeper appreciation of the novice nurse, being a role model, reshaping career prospects and inspiring others. Similarly, Foley-Brinza and Brunges[31] also noted that despite an initial unwillingness, the result of cross-training was improved nursing teamwork and culture.

However, the unfavorable aspects of this new challenge, such as added stress compounded by increased or heavy workloads when asked to cover absenteeism, can lead to burnout[39]. The unique perioperative environment has been identified as potentially more hostile than other areas of nursing, due to the confined space of an operating theatre, high patient turnover and the intense nature of work being performed, which is also more likely to add to burnout[40].

Implications for perioperative nursing

The ACORN standards assert the acquisition of new knowledge is required to provide a high standard of safe patient care[20]. All perioperative nurses have a professional responsibility to seek and engage in professional development activities. Additionally, perioperative education programs should be designed for specific training needs[20]. Thus, programs such as cross-training should consider the impact on participant satisfaction, confidence and competence, in addition to reducing workforce issues, improving staff satisfaction and retention, and patient safety. A specific focus should be on the uninterrupted theory and practice experience to consolidate learning and produce confident nurses willing to work across all areas. Strategic implementation of cross-training programs in the perioperative environment should also include evaluation of pre- and post-training experiences to ensure effectiveness of training and the positive impact on staffing and delivery of quality patient care.

Knowledge translation

1. Cross-training is a significant strategy for addressing perioperative workforce issues and ensuring patient-centred care.
2. Cross-training impacted positively on perioperative teamwork and job satisfaction reinforcing staff retention and quality patient care.
3. Inadequate consolidation of cross-training influenced successful transition to confident practice.

Conclusion

This study on perioperative nurses' perceptions of cross-training has affirmed the positive impact on teamwork and professional satisfaction and the delivery of holistic patient-centred care. However, in order for cross-training to be successful and increase nurses' clinical confidence, participants should have access to the uninterrupted theory and practical components of the program. The program was vital for skill development and was considered an essential element in developing confidence and competence. If known barriers are addressed, cross-training can potentially improve the active engagement of perioperative nursing staff and thus contribute to reduced workforce issues and improved patient safety and quality of care.

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HEALTH EDUCATION & LEARNING partnerships

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5. Specimen identification, collection and handling

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Peer-reviewed article

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Innovations in postgraduate work integrated learning within the perioperative nursing environment: A mixed method review

Abstract

Purpose: To determine the impact of the Graduate Diploma of Perioperative Nursing on student learning and career progression.

Participants and setting: A validated mixed methods descriptive survey was sent to participants (n=67). Findings were analysed using descriptive statistics and results were further investigated using a focus groups of 12 individuals.

Methods: Overall 96 per cent of graduates were satisfied with the program and agreed that the program had improved their delivery of patient care and enhanced their application of theoretical knowledge to clinical skills. Three themes were identified from data from the focus groups: 'learning', 'empowerment' and 'opportunity'. Qualitative findings confirmed program satisfaction among participants who valued the learning experience.

Conclusion: The Graduate Diploma of Perioperative Nursing provides a unique opportunity for nurses in Western Australia to engage in a workplace-supported program to consolidate their specialised practice. With significant cutbacks occurring in nursing education across both the private and public health care sectors, the profession should advocate for the role of work integrated learning as a strategy to support nurses' development in a complex and changing health workplace.

Introduction

Within nursing academia and the health services there is ongoing discussion and concern about the practice-to-theory gap in undergraduate[1] and postgraduate speciality practice programs. Postgraduate programs providing specialist clinical practice cannot validate clinical and professional competence in their learning outcomes without student engagement in the clinical environment. However, providing workplace learning opportunities for postgraduate programs remains limited[2]. Entry to practice registered nurse placements are limited and remain the priority for universities and the profession, therefore reducing potential supernumerary clinical placements for postgraduate students.

The Graduate Diploma of Perioperative Nursing delivered at an Australian university aims to meet the needs of both theory and clinical practice with an understanding that supernumerary positions are limited. The program, rather than requiring clinical placement, instead uses a model of work integrated learning, as previously reported[3]. With increased pressure on health services to practice with efficient staffing levels and reduced access to staff learning and development, senior nurses advocating for the program have requested further data to support the impact of the

program on participants. This data will assist when budget requests are made concerning student numbers, access to program resources such as support to attend face-to-face staff development programs, rotation through a variety of theatres (which impacts on orientation and supernumerary time) and availability of senior staff to provide assessment and feedback concerning new nurses' practice.

Study design

The research aim was to determine the impact of the Graduate Diploma of Perioperative Nursing on student learning and career progression. A concurrent mixed method design as described by Creswell[4] was used for this study. This involved the collection and analysis of qualitative and quantitative data separately.

A validated mixed method descriptive work integrated learning (WIL) survey was sent to graduates from the previous five years (n=67). Potential participants were encouraged to forward the information to colleagues as some of the contact information held by the university may not have been current (referred to as a Snowballing technique[5]). Data analysis for the survey data involved the use of descriptive statistics.

To provide further depth to the survey findings, graduates of the 2017 program (n=12) participated in a focus group (n=11). The focus group technique was used as a strategy to validate and explain the survey themes identified. Focus groups provided an opportunity for participants to share their stories, opinions and thoughts about the given topic[6].

Findings

Of the potential 67 participants meeting the inclusion criteria for phase one of the study, the online survey, a response rate of 22 (33 per cent) was obtained. Table 1 shows the number of respondents from each of the five years from 2013 to 2017 (one respondent did not identify which year they studied.)

Table 1: Response rate WIL survey by year (n=21)

	2013	2014	2015	2016	2017
Number	4	4	4	4	5

Of the 33 per cent of participants that replied, 86 per cent had already been working in the perioperative suite prior to program commencement, 9 per cent had a student clinical placement as their only experience, and 5 per cent had no previous experience.

Demographic details highlighted a range of ages of the participants, as outlined in Table 2.

Table 2: Age of participants

Age	Number
21–25	3
26–30	5
31–35	4
36–40	4
41–45	4
46–50	2

Quantitative findings

The adapted WIL survey indicated that 39 per cent of the participants had gained a promotion since completing the program with a further 55 per cent of the remaining 61 per cent having had the opportunity to act in senior positions.

Responses to questions relating to the program were rated on a five-point Likert scale, with the five points equivalent to 'very satisfied', 'somewhat satisfied', 'neutral', 'not very satisfied' and 'not at all satisfied'.

A high percentage of participants were satisfied with the program with 96 per cent articulating they were either very satisfied or somewhat satisfied. Particular aspects of the program and the percentage of participants who responded that they were satisfied are as follows:

- the study days (100 per cent)
- staff development support (90 per cent)
- online academic content (96 per cent)
- WIL (96 per cent).

The impact of the program on participant's knowledge, skills and abilities was measured with a five-point Likert scale of 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree' and 'strongly disagree'. The data indicated that participants:

- agreed that the program had improved their delivery of patient care (96 per cent)
- agreed that the program had improved their application of theoretical knowledge to clinical skills (96 per cent).

Additionally, participants agreed that the following aspects were improved by the program (percentage of participants shown in brackets):

- perioperative practice (100 per cent)
- critical thinking (81 per cent)
- reflective practice (84 per cent)
- evidence-based practice (100 per cent)
- independent learning (96 per cent)

Nearly all participants (96 per cent) agreed that academic support provided by the university had impact on their knowledge, skills and abilities and 55 per cent stated that they were interested in further study.

Qualitative findings

The qualitative findings supported the quantitative data that overall participants enjoyed the program and felt that it provided a unique opportunity to learn and consolidate the knowledge, skills and attitudes for perioperative nursing. Three themes were identified from the data, 'learning', 'empowerment' and 'opportunity'.

Learning

In the online survey and in the focus groups participants made open-ended comments that the online platform and study days provided a positive place to engage in learning. The study days in particular brought together all of the students from across the various health care sites. This allowed opportunities to share experiences, stories and ways of practicing.

Participants felt that there were varied learning opportunities provided in the program. These different sources of information supported understanding and the ability to apply information to different scenarios. Statements of support by the participants included:

> 'Study days and hands on practice with equipment'.

> 'Rotating through specialities has given me the skills and ability to operate in all fields.'

This application of learning was supported through the assessment tasks. Assessments promoted learning through the application of perioperative practice, as highlighted by participant comments:

> 'Case study assignment good in outlining pre-, intra-, and post-operative care required for optimal patient care in perioperative setting.'

> 'I've actually read more policies and standards in this year than I did in my previous working... so I think it makes you actually go and look things up and see what it actually says.'

As a result of these learning opportunities, participants described how they had increased their knowledge and skills for perioperative nursing practice and how this directly related to improved consideration of practice:

> 'Ability to learn new skills/ information that has helped me to advance'.

> 'My learning helped me to be less task-orientated and more evidence-based in my nursing and I feel that it has enabled me to be a better periop nurse and has refocused my purpose on the patient's wellbeing'.

> 'You're always thinking about all the little things that you're doing that maybe you didn't think of before'.

There were some comments related to the academic requirements of completing a graduate diploma and learning the skills of referencing and academic writing. However, despite these extra requirements, participants appreciated that the national standards of education must be met for the qualification of a graduate diploma. One program change that participants felt impacted significantly on student learning was the removal of inter-hospital placements. Until 2013 students were required to undertake a rotation outside of their health service; in particular, students crossed between public and private health services and tertiary and secondary centres. Due to the introduction of centralised staff systems, hospitals in the public system found this process increasingly challenging resulting in its cessation. Participants felt strongly about the placement removal, and believed that it should be brought back into the program.

> 'I think the course should be reverted back to allow students to be rotated around each host hospital, I found that beneficial in gaining more experience through spending time in different hospitals' specialty areas'.

Empowerment

The extension of knowledge and skills empowered students to question practice and seek new ways of providing care. There was a consensus that practice in many cases is routine:

> 'I also find people do stuff in theatre that they've done for years, that's just because they do it that way.'

At times students found it frustrating when staff could offer no evidence-based practice reason for their teaching and direction of care:

> 'There's no backing behind what they do.'

The knowledge gained from the program and the requirement to review national and international best practice standards and publications provided students with a greater sense of confidence to question practice and make recommendations for practice.

> 'You've got confidence, and you understand the process behind why things come about... you can speak up about things, because you know that you've read about it.'

Opportunity

Completion of the program was seen to provide an advantage when applying for promotional positions or being allocated increased responsibility within the health service. Participants in the surveys outlined promotions within their unit, opportunities to act in senior roles, and being asked to join committees and take on extra responsibilities.

> 'I think looking at other people who have done the course over the past few years … who are now acting CNs, or even if they're not acting CNs, they've taken on responsibilities, or are facilitators for the students that come through, so it's kind of… either they're more driven, which led them to do the course, but has also led them to get promotions, or whether the course helped them in the interviews to get those positions. I think… there is a connection between taking on more duties and having done it.'

Further to this opportunity was the networking that occurred across health services and across year groups. An informal alumni had developed:

> 'I think a lot of the people that have done the course previously are quite proud of it as well, and that I found a lot of people that had done it, they'd go, 'Oh, how are you going?… How are you finding this?' and they're willing to give their support.'

Discussion

Work integrated learning (WIL) describes the collaboration between higher education institutions and industry to provide workplace learning. Workplace learning supports the application of theory to practice which develops the essential skills, experience and an understanding of the 'real' world of the chosen profession[7,8].

Findings of this study suggest that the Graduate Diploma of Perioperative Nursing provides a unique opportunity to support perioperative nurses in their professional practice. The results from the research data have indicated that participants found the program to be of benefit to their professional knowledge and practice and that career promotions and opportunities had been linked to the program.

Despite these benefits, the application of WIL in postgraduate nursing education remains relatively untapped[7,8]. Cutbacks in learning and development departments and reduced access to professional development time have significantly hindered their introduction and continuation. In particular, postgraduate levels of education in nursing in Australia are at risk of falling behind comparable nations. A recent report conducted by the Victorian Government Department of Health[9] clearly cited postgraduate education as a priority to nurses and that the greatest barrier was cost. The paper suggested removing postgraduate education from the academic setting and aligning it with professional colleges as is the case for postgraduate specialty medical education. Such colleges work in a similar arrangement to the perioperative course, aligning education within the hospital system and so reducing costs. This model, which is also used by the perioperative program under the banner of WIL, can provide an alternative solution that continues to engage with the university sector.

Limitations

There may have been a number of potential participants who did not receive their invitation to partake in the study due to changes in the contact details of some students since enrolment and despite the researchers encouraging participants to share the recruitment email with other program participants that they knew. This study relates only to the work integrated program the Graduate Diploma of Perioperative Nursing provided through an Australian university. The findings of this study do not translate to other WIL programs provided by the university or other universities.

Recommendations

The study findings have provided evidence to support the perceived benefits of the Graduate Diploma of Perioperative Nursing, and in particular WIL. The use of the WIL model of education in postgraduate nursing education should be considered further by schools of nursing to support the ongoing learning needs of registered nurses. Specialised nursing clinical practice cannot be taught and learnt from the classroom without the opportunity to apply theory to practice. Departments of health should be encouraged to work with the education sector to consider further opportunities for postgraduate WIL to meet the demanding needs of the profession.

Conclusion

The Graduate Diploma of Perioperative Nursing provides a unique opportunity for nurses in Australia to engage in a workplace supported program to consolidate their specialised practice. With significant cutbacks in nursing education across both the private and public health care sectors, the profession should advocate for the role of WIL as a strategy to support

nurse's development in a complex and changing health workplace. Nurses can ill afford to ignore their responsibility to lifelong learning and professional development in the rapidly advancing health industry. However, increasing costs associated with academic education remains a significant barrier to engagement in further education.

The findings of this study suggest that the participants engaged with the program content and delivery and had been able to apply their learning to practice. Of the 22 participants that participated in the WIL survey all indicated that they planned to stay in nursing with only one unsure about their future in perioperative nursing. Further to this, participants agreed that the program was of benefit to their professional practice and offered opportunities for learning and promotion; however, all agreed that the program needed to incorporate rotations across health service sites as previously included.

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Pressure injury risk assessment and prevention strategies in operating room patients – findings from a study tour of novel practices in American hospitals

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Introduction

Hospital-acquired pressure injuries (HAPIs) lead to complications such as increased pain, increased bed days, re-admissions, multiple surgical interventions, possible disfigurement, decreased quality of life, increased health care cost and mortality[1-5]. However, HAPIs are preventable and financial penalties have been imposed in some parts of the world as a strategy for ensuring hospitals comply with standards of practice to prevent them from occurring[1]. In the United States of America, the Centers for Medicare and Medicaid Services developed guidelines that deny reimbursement for care required due to HAPIs across hospitals in the United States of America[2]. In the Australian context, pressure injury has been identified as a hospital-acquired complication with the potential to affect an organisation's revenue[6]. In Queensland, public hospitals attract significant penalties for failing to prevent pressure injuries with fines ranging from $30 000 and $50 000 for Stage 3 and Stage 4 HAPIs, respectively[1].

Research indicates that pressure injuries from the operating room (OR) can appear from 48 to 72 hours after surgery, thus the incidence of pressure injury following surgery is likely to be under-reported[7–10]. It can therefore be difficult to gain a true representation of pressure injury development in the OR. Facilities in the USA are now attributing pressure injuries that appear 72 hours after surgery to the care the patient received in the OR[11].

There are several factors specific to the OR which increase the risk for pressure injury development such as poor positioning, major trauma/surgery, pharmacological side-effects, impaired regulation of body temperature, extracorporeal circulation, reduced perfusion, ineffective communication of patient risk, operations over three hours in length and the patient being immobile and unable to feel pain[2,7,12–17]. Importantly, for every 30 minutes past a four-hour procedure the risk of pressure injury development increases by approximately 33 per cent[11].

Some Australian health services recommend the use of guidelines for preventing HAPIs and include administering the Braden Scale when there is 'more than four hours of complete immobility such as during surgery'[17]. However, research indicates that the Braden Scale has poor predictive validity for critically ill patients[18]. Additionally, in their article, Byers, Carta and Mayrovitz[19] explain that using the Braden Scale following induction of a general anaesthetic would be futile, identifying all patients as 'at risk' without much variability[19]. In this case, staff will be unlikely to implement extraordinary interventions during this phase. Furthermore, the Braden Scale does not require a skin inspection to be undertaken[20]. This leads to an ineffective assessment of the pressure injury risk for OR patients.

Project background

Being awarded a 2017–2018 South Australian premier's nursing and midwifery scholarship allowed the authors to undertake a study tour to the USA to investigate pressure injury risk assessment and prevention strategies used there and to see what could be adapted to use in Australia.

The purpose of the study tour was to investigate how several key hospitals in the USA are using new tools to assess perioperative patients for pressure injury risk. Additionally, we aimed to explore what preventative interventions are being used for patients identified as being at risk of developing a pressure injury and to discover how these practices have been implemented.

The USA was chosen as a leader in HAPI prevention largely due to their implementation of two assessment tools, the Munro Pressure Ulcer Risk

Assessment Scale For Perioperative Patients (Munro scale) and Scott triggers which have been repeatedly validated and used across numerous hospitals in the USA. Both tools specifically assess for pressure injury risk in the perioperative population, allowing the surgical team to appropriately plan and effectively communicate interventions to prevent pressure injuries. At this stage there is little evidence comparing these new tools to the Braden or other widely used scales; however, this can be attributed to the relative infancy of these tools. Both tools are part of the Perioperative Pressure Injury Toolkit produced by the Association of PeriOperative Registered Nurses (AORN)[21].

We visited seven hospitals across four states in the USA and met world renowned researchers and leaders in the field of pressure injury prevention as well as individuals who are affiliated with AORN and the National Pressure Ulcer Advisory Panel (NPUAP).

Project findings

The Munro scale

In California we visited Providence Saint John's Health Center, Santa Monica, and were hosted by Cassendra Munro, MSN, RN, CNOR. Cassendra is the Magnet and professional practice manager and the founder of the Munro scale.

The Munro scale encompasses assessment of patient risk, with a risk level scored for each phase of surgery (pre-, intra- and post-operative)[22]. The Munro scale has undergone three rounds of Delphi research and is currently implemented in seven sites across the USA. It is currently undergoing revision and the next version is due soon.

Preoperatively the Munro Scale assesses mobility, nutritional state, BMI, recent weight loss, age and co-morbidities. Intra-operatively it assesses physical status, ASA score, anaesthesia, body temperature, hypotension, moisture, surface/motion and position. In the Post Anaesthesia Care Unit the Munro scale assesses the length of procedure and blood loss. The total of the cumulative scores deems a patient low, moderate or high risk. One of the standout benefits of the Munro scale is its cumulative nature that facilitates communication and handover between the preoperative, intra-operative and post-operative departments and through to the inpatient wards. It requires nurses to say who they have handed over the information to, which was quite interesting, and requires signatures of who completed the assessment and who is receiving the patient.

Additionally, the mnemonic of CMUNRO SCALE® can be used to heighten awareness and is a great transition to the Munro assessment tool. The CMUNRO SCALE® mnemonic was developed for nurses to become accustomed to the perioperative risk factors evaluated by the Munro scale. The difference between the CMUNRO SCALE® mnemonic and the Munro scale assessment tool is that the latter has calculations for a level of risk which results in a cumulative score and is predictive in nature. Cassendra demonstrated that the mnemonic could be put on a lanyard by nurses for quick and easy access. Cassendra stated that she believes the use of the mnemonic heightens awareness of contributors to pressure injury, increasing prevention and management, increases wound consults, increases communication and improves skin assessments. Cassendra reiterated to us the importance of 'closing the loop' so enhancing and facilitating communication and feedback across all departments.

	Preoperative
C	Co-morbidities current status
M	Mobility
U	Under age of 60
N	Nutrition
R	Recent weight loss
O	Over weight (BMI)
	Intra-operative
S	Systolic BP
	Surface
C	Core temperature
A	ASA
	Anesthesia type
L	Laying position
	Laying moisture
	Post-operative
	LOS periop
E	EBL

Summary of the CMUNRO SCALE

Scott Triggers tool

In Memphis, Tennessee we were hosted by Susan Scott, BSN, RN, WOC, and visited Methodist University Hospital, St Jude Children's Research Hospital, Memphis VA Medical Center, Le Bonheur Children's Hospital and University of Tennessee Health Science Center. Susan is the safety quality improvement educator at the University of Tennessee (Medicine) and the founder of Scott Triggers.

The Scott Triggers tool evaluates four evidence-based predictors of perioperative pressure injuries. The tool is used preoperatively to assess for a patient's risk of pressure injury.

Aerial view of St Jude Children's Research Hospital, Memphis, Tennessee (foreground right)

It asks four questions which require a yes or no answer. This tool takes into account a patient's age (>62 years), serum albumin level or BMI (albumin level < 3.5g/l or BMI < 19 or > 40), ASA score (>3) and estimated surgery time (surgery greater than three hours). Two or more 'yes' answers constitute a high risk patient and a set of evidence-based interventions in the form of an OR skin bundle or perioperative toolkit should be implemented. For example, practices such as relieve, reduce and redistribute are promoted as well as interventions such as offloading the heels.

Scott Triggers® has been validated in over 7000 surgical patients in Houston, USA (Susan Scott, pers. comm. email 8 July 2016) In one study, the incidence of pressure injuries decreased from 3.37 per cent to 0.89 per cent and the facility reduced costs by US$1 364 000 for a one-year period by using the Scott Triggers Tool (Susan Scott, pers. comm. NPUAP conference 2 November 2016).

At the Methodist University Hospital in Memphis a 'START Procedural Briefing Confirmation Card' is used pre-, intra- and post-operatively. START is an acronym for S=Supplies/equipment; T=Track history, allergies and patient notes; A=Assess fire and skin risk; R=Medication; and T=Time out and tell the facts (fire score, skin risk and allergies stated). The preoperative nurse completes a Braden assessment for a patient and documents the score on START. If a Braden score is below 16 a 'yes' box is ticked, indicating a pressure injury risk is present.

The circulating nurse in the OR then answers yes or no to the following questions:

- Is surgery anticipated to be over two hours?
- Is the patient's ASA score three or higher?

If either of the above are answered with yes, the patient is considered at high risk for pressure injury. This START card brings pressure injury to the forefront of perioperative nurses' minds. Interestingly, the START card assesses a patient's fire risk. A notable benefit of START is it encourages communication and collaboration among team members

SCOTT TRIGGERS®

Review patient record and complete data in left column. Place a check in the right column if the answer is YES. If two or more YES answers are present, this may indicate an increase risk of perioperative pressure ulcers. Use Perioperative Pressure Injury Prevention Plan (PPIPP) of care.

SCOTT TRIGGERS*	Does it meet these qualifications?	If YES, please check here.
Age_____	Age 62 or Older	
Serum Albumin _____ g/L or BMI	Albumin level <3.5 g/L or BMI <19 or >40	
ASA score (circle) 1 2 3 4 5	ASA score 3 or greater	
Estimated surgery time in hours/minutes_____	Surgery time over 3 hours or 180 minutes**	

Two or more YESES = HIGH RISK SURGICAL PATIENT

Assessment Comments:

** Scott Triggers® is a set of evidence-based factors (named for nurse/program founder Susan Scott) identified as predictors of highest risk for pressure injury development in the study (e.g., age 62 or older, Albumin level below 3.5 and ASA score 3 or greater). Scott, SM.* Progress and Challenges in Perioperative Pressure Ulcer Prevention. *JWOCN. 2015;42(5):480-5*

*** Surgery time is calculated from the time into the Operating Room until the time out of the Operating Room.*

along the perioperative journey, ultimately improving continuity of patient care.

A few other key points we discovered were that at St Jude Children's Research Hospital the anaesthetist generally moves the patient's head every hour or so as well as using gel or foam head rings for the paediatric population. A lot of the hospitals also used disposable OR sheets to help wick away moisture during surgery. Circulators would prep with a chloraprep swabstick to minimise pooling of fluids.

Information sharing

In Indiana we were hosted by Eskenazi Health's Director infection prevention, Debra Fawcett, PhD, RN. At Eskenazi Health, we were fortunate enough to meet with members of the Indianapolis Coalition for Patient Safety. The coalition provides a forum for Indianapolis hospitals to share information about 'best practices' and work together to solve patient safety issues. This was a fine example of various organisations and professionals coming together for the ultimate goal of patient safety.

Other important points we learnt is that off-loading the heels is important but there are still questions about what to off-load the heels with as you do not want to use something which will 'bottom out' or simply relocate the same pressure to a different area on the leg. Also, if using prophylactic dressings, e.g. to the sacrum, frequent skin inspections must still take place. Several wound care ostomy nurses explained these dressings do not prevent pressure injuries but may decrease friction or shear.

While at Eskenazi Health we learnt that if a patient developed a hospital acquired PI, a root cause analysis would be conducted. If the patient had recent surgery, the occurrence of the PI would be forwarded to the OR leadership team as a learning opportunity. This certainly helped to close the loop and to discover if the pressure injury was correlated with the surgical position or devices used throughout surgery. It was beneficial to see how communication enabled a great culture of improving patient safety in a non-punitive way. An emphasis on communication was evident at every hospital we visited.

Memphis VA Medical Centre, Memphis, Tennessee

Electronic documentation

In Boston, Massachusetts, we visited Beth Israel Deaconess Medical Centre and were hosted by Clinical manager perioperative education, Charlotte Guglielmi, MA, BSN, RN, CNOR.

In Boston pressure injury risk had been incorporated into electronic documentation, which appeared efficient and effective. There were two graphics of a patient shown from the front and the back. Nurses could easily click on the point where they applied padding or noted a problem and then make a note to indicate appropriately. Jeff, the registered nurse who we were buddied with said, 'this made life easy because nurses didn't have to go through lots of lists of words but could just see where you want to make a note, click and type'. It became apparent that a recurrent theme at all facilities was that a lot of HAPIs were device-related from items such as endotracheal tubes and intravenous access devices. This reiterated the importance of the fundamentals of care and highlighted the importance of education for all staff who take part in positioning the patient in the OR.

Another key point discussed was ensuring a comprehensive skin assessment pre- and post-procedure and that that findings from these are written down. In Boston they had a saying, 'if it isn't written down, you own it'. This suggests that if a PI does occur, OR staff must be able to defend their actions toward its prevention or it will be assumed to have started in the OR. All the hospitals we visited performed skin checks pre- and post-operatively

and some facilities used 'four eyes' meaning two nurses perform the skin assessment together.

Discussion

By undertaking this study tour to the USA, we equipped ourselves with the knowledge and experience to implement a pressure injury risk assessment tool for surgical patients. While some risk factors cannot be modified, such as the length of a procedure, the risk of a PI developing can be reduced by ensuring care provided is based on best-evidence practices and risk is communicated to subsequent care givers.

The opportunity to see new developments in the field of pressure injury risk assessment and prevention in the USA has enabled us to increase our knowledge exponentially and also benchmark our current practices. We believe, based on what we have learnt from our study tour, that we can create a perioperative pressure injury toolkit containing pertinent evidence-based recommendations for pressure injury prevention. Such a toolkit has potential for transferability across other clinical settings that provide surgical care. We foresee many benefits of an assessment tool and toolkit including reduction in delayed discharges, fewer bed days lost and decreased cost associated with pressure injuries as well as increased positive outcomes for patients, families and the wider community.

However, before implementing a new pressure injury risk assessment tool in the OR we would need to do some groundwork including gap analysis. Careful consideration of the needs of our health network will indicate which risk assessment tool should be implemented. This would follow the release of the revised and latest version of the Munro scale.

Acknowledgements

We would like to acknowledge the many dedicated and inspiring nurses who made our study tour possible and such a success. We met many trailblazers in the nursing field and became acquainted with world-renowned sites. We are extremely grateful for the immense sharing of time and knowledge from each site to assist us in achieving our objectives for our study tour. A special thank you to Lisa Spruce at AORN and Deborah Fawcett who were instrumental in recommending sites and individuals for us to visit. Our study tour was a truly inspiring and memorable experience.

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Grants and scholarships

Grace Loh
ACORN Director
Chair of Grants, Awards and Scholarships Committee

Bravura Laser Safety Officer (LSO) education scholarship, November 2018

If you work with lasers in your workplace this course will broaden your knowledge and improve your expertise and competence in laser safety. The scholarship is open every six months and equates to eight hours of continuing professional development (CPD) for members. We are very grateful to our partners at Bravura for sponsoring this scholarship.

A brief summary of our ACORN members who have been awarded this scholarship follows:

- Jincy Paulose (SAPNA), scrub and circulating nurse working with lasers in urology who would like to be the trained LSO in her facility.
- Caroline du Preez (SAPNA), staff development nurse who will share her knowledge and ensure compliance with standards.
- Sarah Bird (ACORN Tasmania) who works across scrub and circulating and educator roles. She will use the scholarship to ensure laser safety in the perioperative environment.
- Suzanne Hadlow (NSW OTA) is the laser operator and is also on the radiation safety committee and work, health and safety committee of her hospital. It will assist her to be actively involved in developing policies and procedures for safe patient care.

Education grant, November 2018

We had only one application for this award and it was awarded to Catherine Smith who has been an active member for more than 15 years with ACORN Queensland. Catherine is a nurse practitioner and has been actively involved with PNAQ committees and also served on several Standards review committees. Catherine attended the Obesity Week International Conference in Nashville USA. We look forward to hearing all about the latest developments in obesity care, treatment and prevention from Catherine.

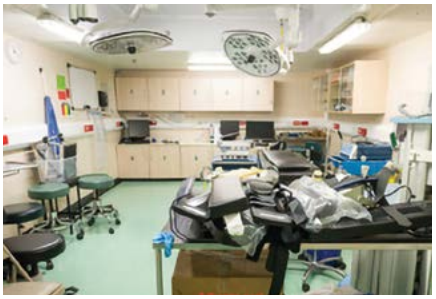
International Volunteer and Teaching Grant, November 2018

We had numerous applications for this grant and would like to thank all our applicants. The recipient of this award is Nicole Dunne who will be working in West Africa aboard the Mercy Ship.

We would also like to share a little of what Australian perioperative nurses are doing overseas while volunteering and sharing their knowledge and skills.

Australian perioperative nurses are:

- performing cleft lip and palate surgery in the Philippines with Helping Children Smile
- providing urgently needed cardiac surgery in developing countries with Open Heart International
- providing perioperative nursing care aboard the Mercy ship in Africa
- providing educational programs and symposiums for doctors and nurses to enhance their skills in hip and knee arthroplasty and trauma with Australasian Nepalese Medical and Dental Association (ANDMA).



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International volunteering with Mercy Ships in Guinea West Africa 2018

Ross McIlwraith
RN, MACORN

Ross McIlwraith received an ACORN International volunteer and teaching grant in 2018.

In the period September to November 2018, I was given the opportunity to be part of the international volunteer program with the ship, *Africa Mercy* – the largest non-military hospital ship in the world.

My interest in volunteering with the organisation started after reading an article published in a nursing journal twenty years ago about the original Mercy Ship, the *Anastasis*, and its journey around the South Pacific providing free surgery to islanders. I felt inspired reading it, as I felt my perioperative skills could be used to support the Mercy Ships initiative, but a young family and developing nursing career kept me from fully realising that dream.

Fast forward twenty years and I found myself in a unique position to once again consider volunteering abroad the *Africa Mercy*. There were a few planetary alignments needed and a number of hoops to jump through to enable me to spend the three months on board the ship as a scrub–scout nurse and general dogsbody. Earlier in the year when I was still wondering how I would finance my trip, I had received an email from ACORN asking if I would be interested in applying for an international overseas volunteer grant, two of which are offered each year. With some help from my state perioperative organisation SAPNA, I sent off my application. About a month before my travel date, I was informed that I had received the grant which paid for my international flights and three courses of rabies vaccinations, with eleven dollars left over for a couple of cups of coffee and a piece of cake. Thanks to a series of well-timed events the hospital where I work, Burnside War Memorial Hospital, gave me extended leave from my position as clinical nurse coordinator of a busy five-theatre perioperative suite to travel to Guinea in west Africa in late 2018. And so I was able to start my journey to volunteer with Mercy Ships in the West African nation of Guinea.

Overview

Approximately thirty percent of the global burden of disease is comprised of surgical conditions. However, five billion people lack access to surgery, with complex factors acting as barriers[1]. An estimated five billion people lack access to surgery. Up to 81 million people face financial ruin to get it[2].

Mercy Ships is a Christian not-for-profit organisation which provides international humanitarian resourcing and aid in third world countries. Its mission is to provide free surgery in low- to medium-income nations. Its main function is to facilitate free surgery, training and mentoring to national African surgeons, nurses and allied health care professionals. Thanks to this vision, thousands of people are able to receive quality surgical care so enabling them to once again become productive members of their local community while likewise freeing their carers. Mercy Ships also provides mentoring programs and courses in sterilisation, neonatal and adult resuscitation to local health care workers, as well as courses in sustainable practices to local farmers aimed at improving crop quality and production.

The ship I volunteered aboard, the *Africa Mercy*, is a former train ferry from Denmark which has been converted into a hospital ship with four wards, five operating theatres and a crew of four hundred people from thirty nationalities. Mercy Ships dock in each country for around ten months. In that time, volunteer staff provide an average of five to six thousand surgical treatments.

Onboard mentoring programs also upskill local health care professionals and introduces doctors to the World Health Organization surgical safety checklist[3]. This safety checklist was an integral part of the theatre routine on board and was performed with every patient. Data demonstrated that the use of the checklist has drastically reduced surgical compactions and mortality.

The ship also liaises and works alongside the African national governments to identify and provide support for local health care needs. Mentoring programs are offered to surgeons and anaesthetists, as well as programs to develop areas such as sustainable agricultural practices for farmers to increase the nutritional value of their crops.

The ship is a first world hospital operating in a third world environment helping to raise practices to *better* practices when *best* practices are realistically unachievable. An example of a positive outcome of this during my twelve-week stay in the OR was the low number of cleft palate and lip

surgeries performed. I was expecting more than the six repairs that were done during my service. When I asked about the low numbers, I was told that during the last visit the ship had made to Guinea, the staff had performed about one hundred and thirty of the same repairs. Apparently the volunteer surgeons on board had done such a good job of training and upskilling the local Guinean surgeons that in spite of working with few resources, the local surgeons had successfully learned the surgical technique for cleft repairs.

Journey

After an overnight flight from Adelaide via Dubai I arrived in Conakry, Guinea on Sunday 26 August 2018. After completing the necessary paperwork and receiving my new photo ID, I found that the Aussie contingent on board already knew of my arrival, and I received my first invitation to share Tim Tams that night.

Orientation started the following day when I learned how to put a lifejacket on in case we had to abandon ship, as per maritime law. Seeing the ship was docked for ten months, I thought the chances of that happening was remote. Once a fortnight the whole crew would participate in a mock fire drill. As a member of the perioperative team I was exempt from having to actually 'abandon ship' but instead formally discussed how we would evacuate our anaesthetised patients if the need arose. Instead of the wooden fire doors I had been used to in Australia, the ship had steel containment doors, which sealed off all horizontal movement between the zones. Any evacuation would have to be up the stairs to the gangplank and onto the dock.

The perioperative department consisted of five operating rooms, a four-bed PACU, small decontamination and sterilising rooms and a sterile instrument storage area. My first week coincided with the beginning of the surgery timetable for the stay in Guinea. I was privileged to be on the team performing the first surgery.

Challenges

The ship is crewed by a multinational staff. America provides the largest contingent of volunteers, followed by Britain, but I'm proud to say Australians and New Zealanders make up the third highest level of volunteers on board, with Canadian, Dutch, Swiss, German and a smattering of other European nationalities making up the rest. Communication was pivotal to life in the OR[4], but strangely my biggest language challenge was not the five or so Guinean languages, including French, that were spoken but rather the English spoken by everyone else. Some international staff spoke English in a fast, confident way but I often found myself asking them to repeat themselves as I found both accents and word usage hard to grasp at times. The day crew, local Guineans who were employed as translators and orderlies, were excellent. Line (pronounced 'Lyn'), one of the female translators, spoke five languages and kept us amused by wearing bunny ears on 'Crazy scrubs' Fridays. The patients all loved Line.

Time is different in Africa. For most patients, daily time falls into one of two categories: before noon, or after noon. This required imagination and problem-solving skills when performing the pre-operative checklist, especially when discussing fasting times. 'When did you eat last?' I would ask. 'A while ago,' would come the reply. Patient identifiers were another challenge as a large number of Guineans were not sure of their birth date. It seemed that many were born on the first of January – a bit like race horses. Often people from the same regional area would have the same name. Ibrahim Dialo was a favourite, with two or three Ibrahim Dialos often on the same surgical list.

The actual surgeries were straightforward as most surgical techniques were standard; however, the surgical skin preparation was complex due to the nature of Guinean lifestyle. The challenge was to effectively reduce the skin flora to acceptable levels for surgery. All patients had a preoperative shower prior to coming the theatre. Such was the level of bio burden and the persistence of the coconut oil favoured by patients as skin lotion that skin was washed three times with betadine preparation followed by another three times with skin sterilant.

Due to the coarse nature of body hair and the coconut oil, surgical clipping was also a slow process. The limited size of the medical waste incinerator also meant that only surgical drapes and gowns contaminated directly with body fluids were disposed of by incineration. Contaminated parts of gowns and drapes were cut out like paper dollies with the rest put in to general waste.

After surgery, all items of a surgical nature were rendered unusable, as it had been found from previous trips that the ship's surgical waste was being scavenged and sold at local markets to people needing surgery at the local hospitals who couldn't afford to buy equipment, as was required, from the medical supply shops.

Another quirky challenge was the expectation of the American surgeon being gowned and gloved by the scrub nurse. This was a cultural issue that after my initial surprise I modified into my own scrub routine,

while stifling the question as to why couldn't they dress themselves?

The working days were long but I was able to observe and be involved with maxillofacial tumours that I have only seen twice in Australia. On *Africa Mercy*, two such tumours are treated every day. The paediatric orthopaedic surgery, performed for bandy and bowlegs, knock-knees and the like, were a result mostly of rickets and other deformities that result from nutritional deficiencies.

Cataracts were plentiful, as Guinea is close to the equator with a consequently high level of ultraviolet radiation and most Guineans cannot afford simple protection like sunglasses or even hats, so often develop cataracts quite early. The ophthalmologists on board use an older technique minimal incision cataract surgery (MICS) to manually extract the cataract in lieu of a phaco machine. This technique is transferable to the local surgeons at minimal cost using cheap intraocular lenses from India or China.

Reconstructive plastics for burns, thyroidectomy, inguinal hernia repairs and lipoma removals are the most common surgeries. As I was due to leave, the hospital was preparing to take on women with vesicovaginal fistula caused by prolonged obstructed labours without access to Caesarian section.

During my twelve weeks on board there were one thousand two hundred procedures performed. Every surgery is a win-win situation as it gives people their life back, with the added benefit of often releasing their carer as well to re-enter the work force.

Would I do it again? Absolutely. Would I recommend the experience to other perioperative nurses? Without a doubt. It is a great way to pass on valuable experience and clinical skills to those who do not have the opportunities that we have in first world nations.

Acknowledgements

Thank you to both the SAPNA and ACORN for their support and encouragement in my volunteering with Mercy Ships organisation.

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Introducing ACORN Professional Standards Officer

The ACORN board is pleased to welcome Cathryn Murphy as our new Professional Standards Officer.

Cathryn Murphy
PhD, MPH, RN, CIC

As Professional Standards Officer, Cath will manage *ACORN's Standards for Perioperative Nursing in Australia*, Practice Audit Tools (PATs) and our new publication, *Professional Standards* to be released in the latter part of 2019.

Cath's career over several decades has covered senior infection prevention positions in clinical, government and non-government settings and professional associations both in Australia, her home country, and internationally. She is an Honorary Adjunct Associate Professor at Bond University on the Gold Coast, Australia.

Career highlights for Cath include working in the USA at the Centers for Disease Control and Prevention (CDC), consulting for the World Health Organization and serving as the elected president of Associations for Professionals in Infection Control and Epidemiology (APIC) in 2010.

In 2016, Cath became the first non–North American to be awarded APIC's esteemed Carole de Mille Award for lifetime excellence in and dedication to the field of infection prevention. She is currently an Australasian College for Infection Prevention and Control (ACIPC) Credentialled Infection Control Professional (Expert), holds the US CIC (Certification in infection prevention and control) and is a fellow of APIC and also the Society for Healthcare Epidemiology of America (SHEA).

ACORN 2020
International Conference

ACORN
AUSTRALIAN COLLEGE OF PERIOPERATIVE NURSES

Sydney Australia

28–30 May

save the date

vision for the future

acorn.org.au/conference2020

Paula Foran
PhD, MACN, FACORN
Education Officer (Webinars)
ACORN Member Director

Education report

Although we are already three months into the year, this is my first opportunity to wish you all a happy and prosperous 2019. With the start of a new year comes the opportunity to re-evaluate our perioperative practice and 'recharge our batteries' to provide our patients with the best perioperative care possible. What better way to do this than to ensure we are all up to date with our educational needs by keeping up with the ACORN webinars.

Practice Audit Tools (PATS)

Another two webinars have been delivered since my last report. By popular demand, the first webinar was the third in the series on our perioperative Practice Audit Tools (PATS), titled 'Audit results: What now? Using your audit results to improve performance'.

The first webinar in the PAT series was, 'ACORN practice audits: Do you see what I see?' which explained the layout of the audit tool and the steps in conducting a practice audit. The second, 'ACORN practice audits: Does it all add up?' clarified how to enter the audit data into the Excel spread sheets and generate results, and discussed specific data collecting issues with the Surgical hand antisepsis, gowning and gloving PAT.

This third webinar further explained what the audit results mean, discussed what you can do with these results, gave suggestions on giving feedback to staff, provided some examples from clinical practice on how audit results can be used to improve performance and gave a preview of the next round of ACORN PATs – Bundle 2: Staff and patient safety. It may be beneficial to you, although it is not essential, to watch these webinars in sequence to get the most from them.

Perioperative anaphylaxis

This webinar was an updated version of the original webinar that was first recorded in 2016. As new information comes to hand, the webinars are revised and updated when required. I had the personal pleasure of presenting this webinar, which provided revision on anaphylaxis, but also incorporated some new information from the Australian and New Zealand Anaesthetic Allergy Group (ANZAAG) 2016 guidelines as well as findings from the 6th National Audit Program (NAP 6) from the Royal College of Anaesthetists which focused on anaphylaxis and presented information about the pholcodine hypothesis.

Pholcodine hypothesis

The pholcodine hypothesis was born from research conducted in Scandinavia. As many of you know, I love research but I think this research is so vitally important, innovative and exciting that even the most uninterested reader may be hooked on this particular research journey!

Neuromuscular blocking agents (NMBAs) have always been high on the list of perioperative substances that may cause anaphylaxis, taking second place (33 per cent) to antibiotics (46 per cent) in the recent NAP 6 findings[1]. NMBAs contain quaternary ammonium ion (QAI) epitopes which may be bound by immunoglobulin E (IgE) antibodies, causing anaphylaxis. These epitopes are common chemicals found in pholcodine and several other drugs. In 2007, researchers reported that previous exposure to QAI epitopes in one drug may sensitise a person to another drug, promoting allergic reactions[2].

Two years later in 2009, research conducted by Florvaag and Johansson in 2009[3] indicated that the rate of anaphylaxis to NMBAs in Norway was much higher than in Sweden. As the researchers already had evidence of the connection between QAI epitopes and neuromuscular blockers, they searched the homes of residents in both countries to try and identify sources of tertiary or quaternary ammonium ion epitopes[3]. Surprisingly, a cough syrup containing pholcodine (PHO) emerged as the most likely candidate[3]. Cough mixture containing PHO was not available in Sweden but was widely available in Norway[4,5]. The researchers postulated that the substituted ammonium ion structure of PHO was resulting in sensitisation and an increased anaphylaxis reaction rate to NMBAs observed in Norway relative to Sweden[5]. This information led to the withdrawal of cough mixture containing pholcodine from the Norwegian market[3]. This also sparked great interest and examination of pholcodine-containing drugs in other countries[3]. Thus, the pholcodine hypothesis was born.

Six years after removing PHO from the market in 2007, 'the Norwegian population has gradually become significantly less IgE-sensitised and clinically more tolerant to NMBA'[6].

It should however be noted that pholcodine is not the only drug that contains QAIs, thus when removal of cough mixture with pholcodine was discussed in Europe, the European Medicines Association concluded that 'the benefits of pholcodine-containing medicines continue to outweigh their risks' and declined to introduce a ban on them[7]. This is despite research findings to suggest that there was no real evidence that over the counter cough medicines containing pholcodine are effective in treating an acute cough[8]. Australian authors suggest that this ruling ignores the principle that in the absence of proven efficacy for a product 'first do no harm'.

Great interest has been shown in Australia and New Zealand where alternatives to pholcodine (such as dextromethorphan) are available for use in cough mixture without the associated risk[7]. ANZAAG and Australian and New Zealand College of Anaesthetists (ANZCA) groups have approached the relevant bodies in Australia and New Zealand, namely Therapeutic Goods and Medsafe, regarding ways to protect consumers from the possible risk of pholcodine use, but thus far have not been successful in a mandatory or voluntary removal[7]. The argument in Australia has been hindered, in part, by a lack of mandatory reporting of serious anaphylactic reactions[7].

McAleer et al.[7] suggest that while anaesthesia in Australia and New Zealand is safer than ever before the target for primary anaesthesia mortality should be zero. The removal of PHO from cough mixtures, or at least restricting it to prescription-only rather than over the counter purchases, would not cause disadvantage to consumers but could further reduce preventable anaesthesia-related harm to Australian and New Zealand patients undergoing anaesthesia[7]. Personally, I now check the label carefully on any cough mixture bottle and prefer the non-pholcodine option for my family and myself. The debate continues!

The ACORN roadshow

The ACORN roadshow continues to travel around Australia having last visited Launceston in Tasmania in February. Please look out for the ACORN team at your local association meetings and feel free to make yourself know to us. We would love to get to know you all better.

In conclusion, I hope autumn brings good health to you and your patients and that you continue to enjoy your learning.

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Cathryn Murphy
PhD, MPH, RN, CIC
Professional Standards Officer

From great to greater

ACORN members may be aware that in late December 2018 ACORN recruited and appointed me to the newly established position of Professional Standards Officer (PSO). It is a bold move by ACORN's leadership and one which will hopefully solidify and expand on the remarkable evolution of ACORN's *Standards for Perioperative nursing in Australia* (the Standards) and further their uptake by Australian perioperative nurses.

When entering any new role it is important to fully understand the people who have contributed to that point and the processes and protocols that are in place. Such understanding is particularly important before making changes. My early review suggests that contributions from volunteers, perioperative experts, academics and clinicians at every stage of the perioperative career path have to date resulted in a comprehensive, high-quality, evidence-based set of practice standards[1].

Importantly the ACORN Standards must always support ACORN's vision which is for Australian patients to receive the safest and highest quality evidence-based perioperative care in the world. Please be reassured that any proposed changes to the Standards will always be evaluated for alignment with ACORN's vision. Changes will also take member proposals, feedback and commentary into account. They will, as always, be subject to the relevant guiding public policy and legislation. As well they will also be responsive to emerging biological, research and technological developments.

In his seminal research on organisational culture, survival and prosperity, published in three best-selling books, Jim Collins identifies a series of fundamental principles underpinning successful organisations that both survived and thrived. One important recommendation Collins makes is that for long-term prosperity organisations must ensure that success reaches far beyond any single leader. Their outputs must also survive multiple life-cycles[2]. For companies, this is achieved by always ensuring their employees share in their success. For associations, this manifests as members experiencing a keen sense of identity with their organisation and subscribing to its core values and a sense of shared purpose.

As the Standards continues to evolve some additional aspects identified by Collins will likely come into play, particularly a 'relentless drive for progress'[2]. Progress is almost always only possible through change. For many, however, change can be threatening, destabilising and often painful. Change for the sake of change is never good. In contrast, thoughtful, well-planned, strategically executed change can lead to greater efficiencies; improved processes; consistent, high-quality outputs and sustainable practices.

Perhaps Collins' most profound recommendation is his warning to organisations seeking growth to 'preserve the core and stimulate progress'. He further explains that a visionary organisation is characterised by its ability during the change process to balance 'continuity and change, conservatism and progressiveness, stability and revolution, predictability and chaos, heritage and renewal, fundamentals and craziness'[2]. I would hope for minimal revolution, chaos and craziness as together we ensure the progression of the ACORN Standards.

For organisations to thrive, they must be nimble, connected and adaptive. Transition is constant, and it always involves 'ending something, exploring opportunities, and embracing the new'[3]. ACORN leadership's investment in a permanent part-time position for the new PSO role reflects ACORN's ability to adapt.

The PSO role encompasses promoting the Standards to more perioperative nurses and health care facilities as well as overseeing the development, review and revision of individual standards and the biennial publication of the book as a whole. The Standard's value, applicability and contribution to safer perioperative care and working conditions rely entirely upon ongoing contributions from ACORN members and the continued oversight of the Standards Committee. To that end member submissions-of-interest to be involved with the Standards and lodged with ACORN in 2018 are currently being reviewed and those members should anticipate hearing soon from ACORN regarding the outcome of that review.

Keeping input fresh and sharing the opportunities associated with and workload involved in maintaining the biennial publication of an updated edition of the Standards are important. As a result, from time to time members with particular skills, knowledge, qualifications and expertise may also be called upon to contribute.

Making the Standards available and accessible in formats and timeframes that maximise their utility and uptake is one of ACORN's goals. Just over a quarter (28 per cent) of members

who participated in a recent survey reported dissatisfaction with access to the Standards. In response, the ACORN board and leadership have addressed the difficulties associated with the security system that has previously underpinned web-based PDF editions of the Standards. As a result, in March or April 2019, Standard's subscribers will enjoy easier access as a new platform is launched via the freshly designed ACORN website. Protecting the investment ACORN and its members have made in the Standards will also become more secure as ACORN adopts new systems of PDF securement, encryption and rights management.

Ensuring the Standards offer good value and are affordable to members and subscribers is another ACORN goal. Finding the balance between affordability for members and subscribers and cost effectiveness for ACORN to produce the Standards is a little more difficult; however, as it has always done, ACORN will remain sensitive to these drivers.

Growing the audience for the Standards is critical to their sustainability. It will require concerted marketing and promotion efforts. Members may help these efforts by sharing their own experiences of using the Standards to drive safer perioperative practice. Members sharing their experiences with other members also supports member development and the development of ACORN as an organisation. Over the next few months stay tuned for some new ways of facilitating that exchange.

Although it has been more than twenty years since I last worked as a perioperative nurse, my career in infection control has given me many opportunities to work with professional associations in their strategic planning, leadership and delivery of member services and products. Those experiences will underpin what I bring to the PSO role with ACORN, and I look forward to making new relationships and sharing new insights with ACORN's membership. For any members hoping for support, growth and progression along their perioperative career pathway through volunteer service to ACORN's Standards please know you are welcome, and I look forward to working with you and for you, as we, along with ACORN leadership and management, all contribute to taking ACORN from great to greater.

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ACORN would like to thank Sonya Osborne for her work as Standards Editor

In 2012 ACORN appointed Associate Professor Sonya Osborne, PhD, to the inaugural position of Standards Editor. Over the next seven years, Sonya devoted herself to bettering the Standards, always ensuring that their development and review was timely, evidence-based and, most importantly, useful to and easily understood by perioperative nurses. Sonya's ability to attract many of ACORN's most highly qualified and experienced members to revise existing standards and develop new ones was masterful. Additionally, she and her volunteer teams mentored and encouraged subsequent generations of ACORN volunteers with compassion and understanding.

ACORN's standards for practice have evolved continuously since their origin in 1977 and under Sonya's guidance the Standards were re-invented and re-aligned with ACORN's organisational vision. Sonya's work with the Standards reminds us, yet again, of the importance of ACORN's member contributions. Thank you Sonya for your vision, your leadership and your commitment. May your legacy in the Standards be something of which you will always be proud.

Associate Professor Sonya Osborne
PhD, MN, GradCert Nursing (Perioperative),
GradCert (Higher Educ), BSN, BSPsychology,
RN, Centaur Fellow, MACN, MACORN
Standards Editor 2012–2018

ACORN noticeboard

International volunteer and teaching grant

As an ACORN member you may be eligible to apply for a grant to assist with travel costs for teaching or doing voluntary work overseas.

The next round of applications for this grant close on 31 May 2019.

Successful applicants will be notified by 31 July 2019.

The application form is available on the Grants and awards page of the ACORN website.

Bravura Laser Safety Officer (LSO) education scholarship

Bravura is offering a scholarship for one ACORN member from each state to complete a course in basic laser safety training (surgical and operating suite).

The next round of applications for this grant close on 31 May 2019.

Successful applicants will be notified by 31 July 2019.

For more details and to download the scholarship application please visit the Grants and awards page of the ACORN website.

Education grant

All ACORN members are eligible to apply for a grant of up to $2000 to attend education events. Often members from rural and remote areas apply for assistance to offset costs associated with travel.

Applications for this grant may be submitted at any time.

Applications will be assessed quarterly, from 15 February, 17 May, 16 August and 15 November. Applicants will be notified of the outcome at the end of March, June, September and December.

For more details and to download the application form for this grant please visit the Grants and awards page of the ACORN website.

Notice of Annual General Meeting

The Annual General Meeting of the College will be held

1:00–1:30

Saturday 4 May

The Ville Resort-Casino
Sir Leslie Thiess Drive
Townsville
Queensland

Call for abstracts

The NTPNA biennial conference is fast approaching.

27th and 28th September 2019

Are you considering attending our conference in Darwin?

Do you have knowledge or experience that you believe would benefit the perioperative community?

If so we would love to hear from you.

The conference theme is 'Deadly Territory' this could be your territory or ours!

We are currently calling for abstracts for presentations over the two days.

Presenters will receive a reduced registration fee for the entire conference.

If you have any questions or would like to discuss presenting at the conference please do not hesitate to email the NTPNA at education@ntpna.org.

NTPNA

NORTHERN TERRITORY PERIOPERATIVE NURSES ASSOCIATION INC.

Call for abstracts closes 28 June 2019

ACORN members continue to benefit in 2019

Hundreds of ACORN members have benefitted since 2016 with fee-waived study through the University of Tasmania (UTAS).

These UTAS scholarships will continue at 50 per cent of HECS fees in 2019.

Applications for Semester 2, 2019 are now open. If you are planning to study further, don't miss out. UTAS may not continue this fee-waived study beyond 2019.

For further information visit our website:
www.acorn.org.au/education/utas-member-benefit.

ACORN AUSTRALIAN COLLEGE OF PERIOPERATIVE NURSES

UNIVERSITY of TASMANIA

Coming events

2019	6–10 April	AORN Surgical Conference & Expo	Nashville, USA	www.aorn.org.au
	1–4 May	ACORN Queensland Conference – Agents of Change	Townsville	www.acornqld.org.au/events/2019-state-conference
	4 May	ACORN Annual General Meeting	Townsville	www.acorn.org.au
	16–19 May	9th EORNA Congress	The Hague, Netherlands	www.eorna.eu/EORNACongress-2019-website-isopen_a557.html
	17–18 May	NSW OTA conference	Crowne Plaza Terrigal	ota3@bigpond.com
	1–2 June	Trauma Tasmania Symposium	Hobart	www.traumatasmania.com.au
	9 August	IFPN Board meeting and AGM	York, U.K.	www.ifpn.org.uk/events.phtml
	16–17 August	VPNG conference	Melbourne Convention and Exhibition Centre	enquiries@vpng.org.au
	6–7 September	ACORN 2019 Perioperative Leadership Summit	East Hotel, Canberra	www.acorn.org.au/summit2019
	27–28 September	NTPNA conference	Darwin	education@ntpna.org
	17–19 October	NZPO conference	Hamilton, N.Z.	www.nzno.org.nz/groups/colleges_sections/colleges/perioperative_nurses_college/conferences_events
	26 October	ACORN WA conference	University of Notre Dame	enquiries@acornwa.org.au
2020	28–30 May	ACORN 2020 International Conference	Sydney, New South Wales	www.acorn.org.au/conference2020

ACORN
AUSTRALIAN COLLEGE OF PERIOPERATIVE NURSES

Member benefit

For a number of years, members have asked if ACORN can assist to provide members with professional indemnity insurance (PII).

We are pleased to offer this benefit to our members through our partnership with Guild Insurance.

Who is Guild Insurance?

Guild Insurance has been providing PII for Australian Allied Health professionals for over 54 years. They currently partner with and provide insurance for nine AHPRA-registered professions.

Why do I need PII?

Even though you may have cover provided to you by your employer, when it comes to the ability to have your own legal representation or zero excess should you need to make a claim, having your own individual Guild Insurance policy could be the difference between a slight inconvenience or, in some cases, a $20 000 out-of-pocket expense.

Guild's combined liabilities insurance policy provides cover for not only the cost of defending a claim but also the cost of damages you incurred when responding to the allegation. The costs of representation can be very high, no matter how minor the outcome of an investigation or enquiry may be. It could be enough to severely disrupt your livelihood, or cripple you financially.

What does Guild Insurance cover me for?

Guild's Combined Liability Insurance policy, an all-in-one liabilities product, includes the following key elements:

1. Professional indemnity: broad cover for financial loss caused in connection with your nursing.
2. Public Liability: cover for accidents that cause injury or property damage because of you performing your job.
3. Products liability: protects you against liability for damages caused by goods sold or supplied by you in your role.

How can I find out more?

Visit our website www.acorn.org.au/membership/professional-indemnity-insurance

Should you have questions about the options for professional indemnity insurance, what it covers and costs, please contact Guild Insurance directly on 1800 810 213.

Important notes

Insurance issued by Guild Insurance Limited ABN 55 004 538 863, AFS Licence No. 233791, is subject to terms, conditions and exclusions.

Please refer to the policy wording and policy schedule for details.

Guild Insurance supports ACORN through the payment of referral fees. These referral fees will be used for member education and services.

New South Wales

Karen Hay
ACORN Director

Allanah Hazelgrove
NSW OTA President

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Sadly, I must begin by announcing that Sr Mary Gabriel (Pat Solomon), an esteemed member of the NSW OTA and our first president, passed away early this year. Pat was a founding member of the association and will always be remembered for her dedication to perioperative nursing and education, and for her beautiful smile. In recent years Pat travelled to the OTA conference on several occasions to present to delegates and share her knowledge and stories of the perioperative environment. It was a true privilege to be present when ACORN President Sarah Bird awarded her an honorary fellowship of ACORN. Pat will be sadly missed by all who knew her.

The Crown Plaza Terrigal is the place to be in May when our annual conference will be held. The executive committee are busy preparing for the conference and the program is almost complete. We would love to see you there – it is the perfect opportunity for you learn something new, network with other perioperative nurses and discover new ideas at the trade exhibition. Registrations will be open soon so keep an eye on your emails and the NSW OTA website.

Providing education for our members is the number one priority for our association. Each year the state executive presents three professional education days and the seven zones hold two days each, amounting to a total of 17 professional education days across NSW and the ACT. We are very excited to announce that in July we are holding a professional education day in collaboration with ACORN. The day will be held on the 6th July in Sydney. More information will be available shortly.

We have recently joined with the Clinical Excellence Commission to review 'Policy Directive 2013_054 Accountable Items'. Shortly you will be receiving information about how you can assist in this process. It is the best opportunity we have to influence government policy directly related to our day-to-day work.

Allanah Hazelgrove
NSW OTA President

Northern Territory

Sophie Ehrlich
ACORN Director

Dorcas Shih
NTPNA President

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At the beginning of December 2018, NTPNA hosted an end of year celebration party to which all members and non-members were invited. We had a great time celebrating the great achievements and fellowship of 2018 and the tremendous opportunities for networking with our fellow non-members and medical staff. Such opportunities enable us to promote NTPNA and are a chance for others to get to know more about NTPNA and how we can help with their perioperative education.

The year ahead brings a very exciting time for NTPNA. We are full steam ahead preparing for our biennial conference in September. We are also very excited about the ACORN leadership summit that will be held in Canberra, also in September. We look forward to learning more about leadership in perioperative nursing.

With some great conferences ahead, NTPNA hopes our members will make use of the scholarships available to attend some of these great educational opportunities. If anyone has any questions about the scholarships or grants that are available, please email us at education@ntpna.org. We are more than happy to answer any questions.

Dorcas Shih
NTPNA President

Queensland

Donna Stevens
ACORN Director

Elaine Loots
ACORN Queensland President

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What an amazing and busy first three months of my time as president. Firstly, I need to make a correction from the previous journal report – it was Evelyn Kang who was the winner of the ACORN Queensland research grant. Well done Evelyn and congratulations!

The Queensland ACORN board has been very busy. Our new constitution was registered by the Office of Fair Trade on the 10 January 2019. The board then met on 20 January in Brisbane for a strategic planning session – please take a look at the website to see our new vision, mission and purpose statements.

We welcome back to the board Joy Jensen who is returning in the role of treasurer. A big thank you also to Damien Knight for his efforts in this role.

Did you know that ACORN Queensland are on Facebook, LinkedIn, Twitter and Instagram? On Facebook, ACORN QLD will be replaced by ACORN QLD: Australian College of Perioperative Nurses Queensland with the associated closed group being Members of ACORN QLD Nurses. On Linkedin the group is ACORN QLD (Perioperative Nurses Association of QLD), on Twitter the handle is 'ACORN QLD@AcornQld' while on Instagram it's ACORN QLD acorn_qld. Please join us on these platforms and give us your comments and input.

You will soon be receiving an email from us if you have not already done so. Please respond to let us know what education we can deliver to you at a venue nearby. Alternatively, email Anndrea Steinhardt (Education Officer) at education@acornqld.org.au.

Have you registered for our 'Agents of change' conference in Townsville on 2–4 May 2019? It is still not too late to do so if you haven't. We look forward to seeing you there.

Are you interested in getting involved with ACORN Queensland? If so, please contact me at president@acornqld.org.au.

It is with great sadness that we report the loss of Wenda Young. We express our condolences to her family and wish them long life. Please refer to the tribute on page 56.

'Be sure you put your feet in the right place, then stand firm.'

Abraham Lincoln

Elaine Loots
ACORN Queensland President

South Australia

Trent Batchelor
ACORN Director

Darren Gray
SAPNA President

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During 2018 we saw many changes to the SAPNA committee. Cathy Ebel our president resigned from her post. As president-elect I have been caretaking in that role until the 2018 AGM and subsequent committee elections.

The SAPNA committee has been busy over the past year ensuring that the key qualities of our mission – care, vision and excellence – have been a part of every activity and event we have held or planned through 2018.

At the commencement of the year our president led the committee in a strategic planning event looking at the year ahead and beyond. At this meeting we were able to lay the foundations for the future direction of the organisation to ensure that our prime objectives are met. Throughout the year the committee has referred back to this plan to ensure that our relevance to perioperative nursing remains strong.

In 2018 we saw ACORN come to Adelaide to hold the national conference. It was great to catch up with so many of you at this event and participate in such an informative and thought-provoking program. The year ahead is shaping up to be as good if not better than 2018. Our state conference will be at a new venue so watch out for exciting developments and announcements concerning this.

I wish to thank all past and present members of the SAPNA committee for their time and commitment to our members. Without the time that each and every committee member puts in as a volunteer, SAPNA would not be able to provide its members with the high quality of educational sessions that we do. I also wish to acknowledge our entire member base which is growing year on year. Without your continued membership renewal and support SAPNA could not ensure that perioperative nurses have a voice in health care both locally and nationally.

I look forward to serving you all again in 2019 and networking with you at our educational events.

Darren Gray
SAPNA President

Tasmania

Garry Stratton
ACORN Director

Leanne Glennie
ACORN Tasmania President

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First up, we have had great success with our transition to our new webpage for new (we have 15 who have joined) and current members to access.

On 17 November 2018 we held our first educational session via video-link between Royal Hobart Hospital and Mersey Hospital. This was a great success as we were able to have our three speakers give verbal and visual presentations to both sites.

I would also like to express our sincere gratitude to Mary Condon-Williams, Director of nursing, and Paul Ashby, Business manager, from Royal Hobart Hospital for very kindly allowing us to hold our educational session in their meeting room and for assisting with the refreshments for the day.

Work is still underway for the development of a new members pack to be established along with the opportunity to include some ACORN Tasmania merchandise available for purchase from our webpage. All proceeds from these transactions will go towards helping us provide outstanding educational sessions to our members on a more regular basis throughout the year.

We have our first ACORN Tasmania champion, Ricarda Bakker. I am still hoping that more members will become ACORN Tasmania Champions and actively engage with their workplaces to promote our organisation and distribute notices about ACORN Tasmania events. If you are interested in becoming a champion, then please forward your details and a brief background summary to acorntasmaniapresident@gmail.com.

Members of the ACORN Board of Directors attended our education session in Launceston on Saturday 16 February. This was also linked by video to Hobart and North West Hospitals. I attended the session and was able to personally welcome members and discuss how we aim to continue the success of ACORN Tasmania.

Finally, we are currently organising our ACORN Tasmania Conference to be held over one and a half days on Friday and Saturday 1 and 2 November 2019. The theme will be 'And now for something a little bit different' – keep an eye out for flyers with more details coming soon.

Leanne Glennie
ACORN Tasmania President

Victoria

Patricia Flood
ACORN Director

Jane Thomas
VPNG President

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At the VPNG strategic planning day last year we reviewed the subcommittees and the portfolios within each subcommittee in 2019.

The Conference Subcommittee has organised a regional study day in Traralgon for 16 March as well as the State Conference at the Melbourne Convention and Exhibition Centre in Melbourne on Friday and Saturday 16 and 17 August. The conference will have the trade exhibition over two days which will include education workshops and a session specifically for perioperative nurse unit managers and procurement officers.

The Education Subcommittee organise a variety of educational events, scholarships and grants. The Sr Mary Felix and June Allen scholarship for postgraduate studies in perioperative nursing, the Marea Fennell scholarship for postgraduate studies in management or education and the Mary Barry Medtronic education grant are all available again in 2019.

The first of our two 'Introduction to perioperative nursing' courses was held in February at Wangaratta. It was a fantastic two days and a very big thank you to everyone from the region who assisted in the lead up to the event, presented sessions and assisted with workshops over the two days. The second of these courses will be held in the latter half of the year.

In addition, the Education Subcommittee have organised the second of our co-hosted education events. Matrix Surgical and VPNG will hold a bariatric surgery education day on Saturday 11 May 2019.

Following on the successful management seminar in 2018 we will also be hosting a perioperative education seminar later in 2019.

Information on all the education events, scholarships and grants can be found at www.vpng.org.au.

The Communication Subcommittee are involved in promoting events via social media, managing the VPNG website, producing the quarterly 'Snippets' newsletter,and facilitating for hospital representatives. Please contact enquiries@vpng.org.au if you have job vacancies, trade products or a perioperative education event you wish to advertise or if you want to become a hospital representative.

As a group of volunteers, the VPNG Committee work hard to continue to provide educational opportunities for perioperative nurses in Victoria. I want to thank them very much for their valuable time that they all put in.

Jane Thomas
VPNG President

Western Australia

Grace Loh
ACORN Director

Caroline Dufton
ACORN WA President

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ACORN
WESTERN AUSTRALIA

Great news, our name has changed! As of 7 January 2019 we are now officially ACORN WA.

We have a new executive member on our committee who has taken the position of education coordinator. Please welcome Victor Asirvatham who is employed in the perioperative services at Armadale Hospital. He is keen to get to work with the committee to provide workshops and a conference for this year.

The conference this year will be held at the University of Notre Dame on Saturday 26 October, so please save the date. We thank you for your evaluations and the many ideas you have given us for future workshops and speakers for the next conference. A retreat seems to be a popular theme, with emphasis not only on education but also on perioperative nurses' wellbeing, so we will be looking into providing a mix of topics with a focus on relaxation. If you have any thoughts about a venue for a retreat, for example somewhere down south, please email with your ideas.

Val Di Giusto, our student committee member, is now a qualified registered nurse, and we are putting her great organisational skills to good use by giving her the position of conference convenor on the committee. We can look forward to a well-planned conference this year.

At the end of last year I had the pleasure of attending the Notre Dame awards ceremony where our award for the highest achieving student in the NS208 undergraduate perioperative course and practicum went to Eloise Ebert.

Congratulations also to Val Di Giusto who won a special commendation award for work in the emergency and critical care area as well as the Doreen McCarthy best Effort Award. Well done on your achievements.

The committee are all looking forward to seeing you at our workshops and conference this year.

Caroline Dufton
ACORN Western Australia President

In memorium

Wenda Young 1949–2018

It is with deep sadness that we report on the recent passing of one of our ACORN Queensland Life Members, Wenda Young.

In 1966 at the age of 17, Wenda Lesley Gay Young, born in Warwick, Queensland, was accepted for nursing training at Glen Innes Base Hospital in New South Wales. Following her graduation in 1969, Wenda completed her midwifery certificate at the Toowoomba Base Hospital, then spent the next six months working in Tara (Western Downs Region of Queensland) before moving to the Princess Alexandra Hospital in Brisbane in November 1971.

In 1975 Wendy accepted a position at the Dalby Hospital for two years before joining the Australian Inland Mission to staff their hospital at Oodnadatta, South Australia, in early 1977. In 1978 she moved back to Queensland to work at Birdsville AIM Hospital for a further year. From April 1979, Wenda nursed at the Warwick Base Hospital before transferring back to Toowoomba Base Hospital in late 1981 where she specialised in 'operating theatre' work. Wenda then spent the next 14 years as a scrub nurse at St Vincent's Hospital Toowoomba, followed by 18 years at St Andrews Hospital Toowoomba until her retirement in 2014.

Wendy took an active interest in her professional associations, joining the PNAQ (Perioperative Nurses Association of Queensland) in 1985 and going on to hold the position of Downs and South West secretary from 1996 to 2008. Wenda went on to be awarded life membership of PNAQ for her lifelong dedication to perioperative nursing and even after retirement continued to support and be part of her local association.

RIP Wenda. You will be sadly missed.

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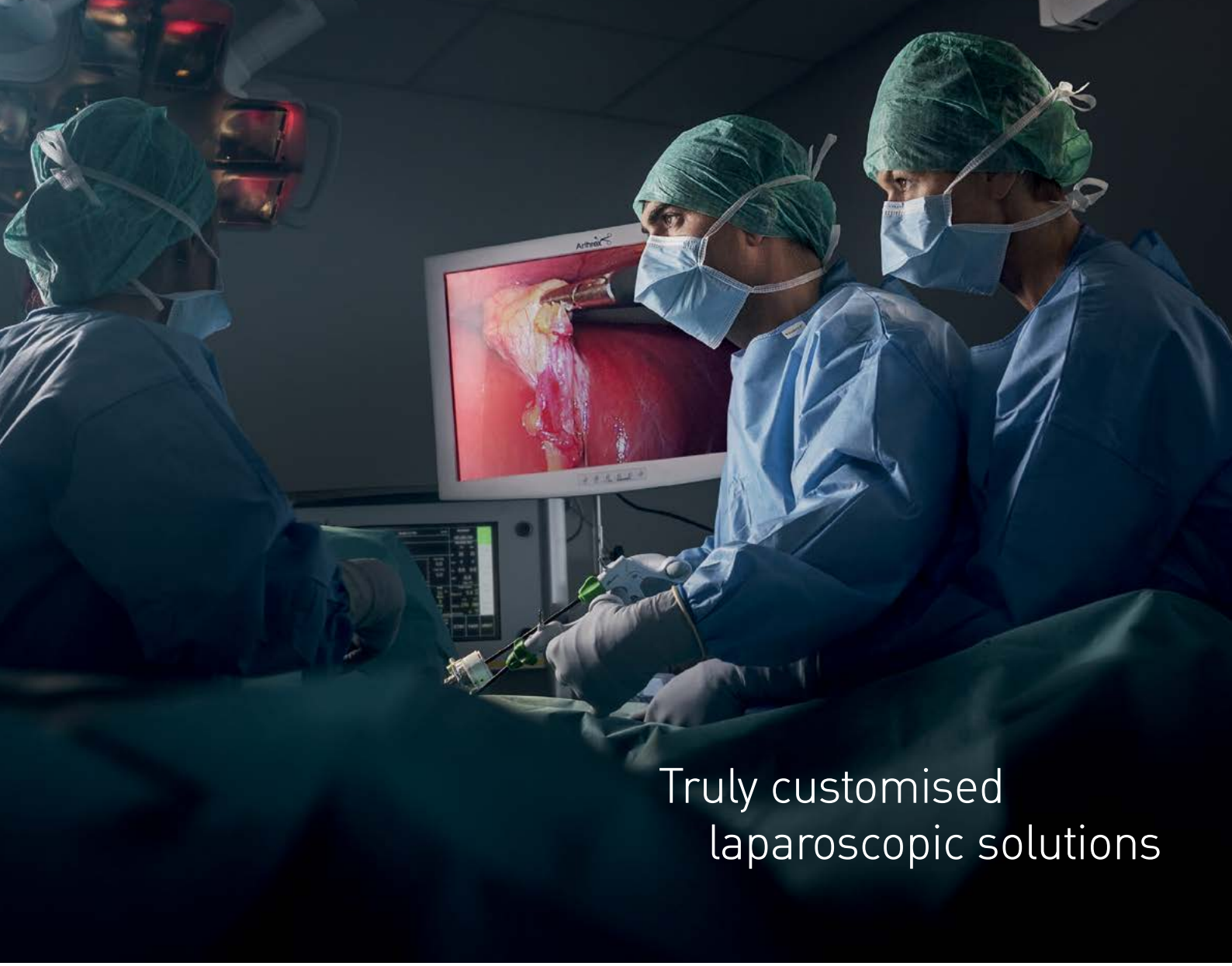

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