# The effects of staffing practices on safety and quality of perioperative nursing care – an integrative review

## Supplemental material: Literature matrix

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| Standards | ACORN, 2020 (Staffing for safety)[1] | 'Applying general nurse staffing formulas to the perioperative setting is not feasible…'<br>'Staffing requirements are set to deliver safe, high-quality, sustainable (non-fatiguing), perioperative care.'<br>'Staff should be seen as an investment and not an expense – cost saving initiatives should not comprise on staff and safety.'<br>'Excluding any appropriately authorised, educated and skilled technicians, the minimum number of nursing staff per session per OR per procedure should be 3.5 nurses who collectively meet the skills and qualifications needed to fulfil the roles…' |
| | ACORN, 2020 (Fatigue)[2] | 'The management of fatigue is a growing issue within health care. This is particularly true in the perioperative environment.'<br>'Health service organisations have a duty to promote a culture of safety by having written policies, procedures and guidelines relating to fatigue management for the delivery of safe and effective nursing care.'<br>'To enable clinicians to function safely and efficiently within their work roles, the manager at the unit level has a duty to recognise the potential of fatigue when considering staffing allocations, rostering and workload utilisation.' |
| Mixed method studies | Beitz, 2019[3] | Cross sectional survey completed by 27 nursing leaders and managers.<br>Few bachelor of nursing programs in the United States of America equip new nurse graduates with the skills to work confidently in the perioperative field.<br>The incorporation of specific perioperative courses in bachelor programs would strengthen the workforce.<br>Senior staff support of new nurses is also paramount to ensure appropriate skills are gained. |
| | Newhouse, et al., 2005[4] | 32 health service organisations participated in this study to assess which staffing factors effect patient outcomes.<br>The study revealed that the use of agency nursing staff did not have any effect on the safety of patients.<br>Increasing the ratio of nurses per theatre was linked to significantly improved patient outcomes. |
| | Vortman, et al., 2019[5] | This study examined the effects of training new graduate perioperative nurses in regards to retention rates.<br>Yearly retention rates in Canada were approximately 59%, after the training program retention rates increased to 87%.<br>Training staff is important for not only patient safety but also recruitment and retention. |
| | Foran, 2016[6] | Australia-wide mixed methods study aimed at addressing three main questions.<br>It is recommended that all undergraduate nursing students in Australia undertake clinical placements within the perioperative environment in order to achieve a high level of nursing practice when working on surgical wards. |

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| Qualitative studies | Platt, et al., 2019[7] | One-on-one, semi-structured interviews with eight scout/scrub nurses in Western Australia.<br>Study aimed to investigate perioperative nurses' perceptions relating to cross-training.<br>Positive perceptions included; teamwork, professional satisfaction and added value in patient care. Identified inhibitors to cross-training included staff shortages and burnout.<br>Evidence suggests that cross-training increases patient safety and facilitates the improvement of suboptimal staffing. |
| | de Siqueira Gutierres, et al., 2018[8] | 220 qualitative surveys conducted across perioperative nurses in Brazil.<br>Objective of this study was to describe nurses' recommendations for effective patient safety practices within perioperative nursing.<br>Eight recommendations were made – Involvement of the multidisciplinary team and health service managers; establishment of patient safety culture; use of surgical safety checklist; improvement of interpersonal communication; expansion of nurses' performance; availability of physical, material and human resources; professional updating and developing continuing education. |
| | Sonoda, et al., 2018[9] | 279 questionnaire surveys completed by experienced perioperative nurses to examine stressors within perioperative departments.<br>High levels of stress have been linked to poor patient outcomes caused by poor performance, poor judgement and lack of decision-making abilities.<br>Perioperative nursing is a high risk environment and involves significant interdisciplinary team work, both of these lead to increased stressors.<br>30–40% of perioperative nurses feel stress during procedures. |
| | Saver, 2005[10] | Qualitative survey across 1075 perioperative leaders in the United States of America (USA) to ascertain workable solutions to staffing challenges.<br>The ratio of registered nurses is widely varied across health service organisations in the USA.<br>Nurse-to-patient ratios are an important strategy to ensure a well-staffed operating theatre and quality patient care. |
| | Foran, 2015[11] | Some studies have shown that there is a decreased interest in choosing perioperative nursing as a career.<br>This study aimed to assess the effects of guided undergraduate perioperative nursing education in relation to recruitment and retention.<br>An effective way of recruiting more novice nurses, to replace the retiring workforce, is to provide adequate pre-learning and guided experiences to nursing students. |
| Quantitative study | Foran, 2016[12] | 28% of Australian undergraduate nursing students (n=332) that participated in the study had less than five hours of perioperative exposure.<br>In order to provide a complete, well-rounded surgical nursing education, it is recommended to provide perioperative education and guided theatre exposure to undergraduate nursing students.<br>The operating theatres should be viewed as a nursing area that provides rich learning capabilities. |
| Literature reviews | Battie, et al., 2017[13] | Literature review of 25 articles relating to perioperative nursing fatigue.<br>Health care has been slow to adopt anti-fatigue policies compared to other industries such as aviation.<br>12-hour shifts and on-call shifts are highly fatiguing for nursing staff.<br>Fatigue management should be incorporated within perioperative departments to increase staff wellbeing and increase patient safety. |
| | Wakefield, 2018[14] | Compassion fatigue is the psychological element of fatigue which is sometimes overlooked.<br>Nurses are caring and compassionate; however, compassion fatigue can lead to the exhaustion of these emotions.<br>Compassion fatigue can lead to compromised patient care.<br>More research is required in regards to compassion fatigue within the perioperative setting. |
| | Graystone, 2019[15] | Compassion fatigue and burnout are prevalent within the nursing workforce and cause job disillusionment and emotional exhaustion.<br>Fatigued nurses endanger whole health care organisations, as fatigued nurses are more likely to make poor decisions and errors.<br>Management of fatigued nurses is paramount to good patient outcomes and organisational security. |
| | Garrett, 2008[16] | Data indicates that shifts over 12.5 hours in length significantly increased the risk of errors.<br>On-call and overtime shifts also increased the risk of errors, thus negatively effecting patient safety.<br>A study of 393 registered nurses over a month-long period showed that these nurses completed 360 mandatory overtime shifts and 143 shifts of voluntary overtime. During this period 199 errors and 213 near misses were recorded. |
| | Foran, 2015[17] | Students who come to the operating theatre often have had little or no exposure to the unfamiliar environment.<br>This review shows the importance of education nursing students in perioperative nursing prior to clinical placements and/or graduation.<br>The article recommends using a guided preceptorship approach to teaching and orientating new staff and students to the perioperative environment. |

## References


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