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REVIEW OF NURSING AND MIDWIFERY STAFFING MODELS

NURSES AND MIDWIVES TOWARDS A SAFER CULTURE

DISCUSSION PAPER

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Purpose

The *Nursing and Midwifery Towards A Safer Culture* (NM TASC) Project presents the Review of Nursing and Midwifery Staffing Models Discussion Paper (Discussion Paper). The Discussion Paper has been extensively researched from the current literature to provide evidence-based recommendations for future staffing models which move beyond the implementation of the Ratios Model.

Intent

The intent of the Discussion Paper is to review Nursing and Midwifery Staffing Models as a proactive step to promote safety for all nurses, midwives and those they provide care for through extensively researched literature and best evidence-based principles. The intended audience of the Discussion Paper is the ACT Health Directorate (ACTHD), Canberra Health Services (CHS), and Calvary Public Hospital Bruce (CPHB).

Of note, the ACT Public Sector Nursing and Midwifery Enterprise Agreement (EA) negotiations are currently underway within the ACT public health system. There is a strong focus on negotiating terms and conditions of a nurse/midwife to patient ratio model which is being negotiated as a *minimum*.

The best practice principles that are recommended within the Discussion Paper could potentially inform future ACT Public Sector Nursing and Midwifery Enterprise Agreement negotiations beyond ratios as a *minimum*.

The current proposed ACT staffing model outlines processes for determining appropriate staffing levels and skill mix based on service demand and is reflected through documents Schedule X (mandated nurse/midwife to patient ratios) and the Staffing Framework (for determining staffing profiles and skill mix on the wards).

Background

In December 2018 the *Nurses and Midwives Towards a Safer Culture* (TASC) Project 'The First Step: Strategy' was endorsed and launched by the former Minister for Health and Wellbeing and Minister for Mental Health. The purpose of the Strategy which outlines the deliverables for the TASC Project, was to provide a safe and healthy environment an environment whereby all persons who enter Australian Capital Territory (ACT) Health workplaces are protected from harm and feel safe at all times.

Nursing and midwifery remain the largest component of the health workforce (Deisell et al 2010; Korkbeek et al 2012; & Holland et al 2019). There are numerous models considering skill mix when staffing nurses and midwives on a shift-by-shift basis (Butler et al 2019), as well as within formalised rosters that are published in advance to cover anticipated patient care needs.

Buchan et al, 2015, states that hospital patients have become sicker requiring more complex nursing care due to advances in technology, resulting in increased patient co-morbidities. Therefore, demands on nurses and midwives have increased due to higher patient acuity, and fewer nurses and midwives dealing with more complex patients (Jones, M, 2020).

There is a current worldwide nursing and midwifery shortage which is being estimated to be about 9 million by 2030. A major contributing factor to this is the ageing nursing and midwifery workforce that is nearing retirement (WHO: World Health Assembly Update, 2016).

Fewer nurses and midwives mean higher workloads. These workloads correlate to increased risk of death for patients within acute hospital settings (Aitken et al, 2018). Workloads should be taken into consideration, not just patient numbers, when different staffing models are considered (ibid cited in Nurse to Patient and Midwife to Patient Ratios – from Victorian amendment bill 2018).

Within the ACT Health context, in December 2019, the Australian Nursing and Midwifery Federation (ANMF) approached the ACT Health Directorate seeking progress on rostering for within the ACT Public Sector Nursing and Midwifery Enterprise Agreement (EA), and a commitment to examine the adoption of Nurse-Patient ratios (Cabinet Submission 18/322). Recommendations from the 19 May 2018 as set out in the Enterprise Bargaining Agreement Update (Cabinet Submission 18/322), authored at the time by Rachel Stephen Smith MLA, former Minister for Workplace Safety and Industrial Relations, *'I recommend the EBA Negotiations Cabinet Subcommittee note:*

c) the proposal (reflected in an MOU) to investigate the feasibility of Nurse/Patient ratios with the ANMF'

Following on from this, the ACT Government on 21 May 2018, noted *'c) the proposal (reflected in the MOU) to investigate the feasibility of Nurse/Patient ratios with the ANMF'* for consideration by Cabinet on Tuesday 22 May 2018.

In August 2018 a Memorandum of Understanding (MoU) was signed by the former ACT Health Directorate (ACTHD) Director-General (DG) and ANMF ACT Branch Secretary to develop a Ratios Framework that could be implemented across the ACT public health services.

In September 2019, a Ministerial Brief was progressed from the ACT Health Directorate (ACTHD) Director-General (DG), on the Ratios Framework Project (MIN19/1265). ACT Minister for Health, Rachel Stephen-Smith MLA noted the ACT Public Sector Nursing and Midwifery Ratio Schedule, ACT Public Sector Nursing and Midwifery Staffing Framework, Information Brief provided by Calvary Public Hospital Bruce (CPHB) for the implementation of the Ratios Framework, noted the indicative costs provided for the implementation of the Ratios Framework and agreement to refer to Treasury for verification (MIN19/1265).

On the 24 February 2021, a Ministerial Brief was progressed from the Canberra Health Services (CHS) from the Chief Executive Officer (CEO) on the introduction of Nursing and Midwifery Ratios for consideration in the next bargaining meeting scheduled for 25 February 2021. ACT Minister for Health, Rachel Stephen-Smith MLA on 24 February 2021 noted the estimated costings of Nurse-to-patient ratios, agreement to introduce Nurse-to-patients ratios based on a 'rounded up' model and agreed that a business case be prepared for additional funding in relation to the implementation of ratios based on the cost estimates prepared by CHS and CPHB (MCHS21/102).

To support the future implementation of Ratios the Chief Nursing and Midwifery Office (CNMO) has presented a 2021-22 Business Case requesting the ACT Government to fund a CNMO Implementation Team for four years.

Nursing and Midwifery Rosters Overview: Staffing Models

Nursing and midwifery rosters are based on relevant State and Territory industrial awards and legislation. These awards aim to provide safe staffing levels that considers the effective utilisation of senior and junior staff i.e., skill mix (Rostering Guide for Safe Staffing, Tasmania Health, 2011). Rosters should consider service demands that fluctuate in activity, for example during admission periods, and in relation to surgical lists or procedures (Rostering Policy – ANMF, 2019, p.1).

Safe rostering must cover shifts 24 hours each day, 7 days a week, or during the hours of specific unit operation (Rostering Policy – ANMF, 2019, p.1). When organisations publish rosters, they must be a complete roster. Rosters are legal documents that can be used in the court of law or within coroner’s hearings (Best Practice Rostering Guidelines, QLD Health, 2018) as they provide a snapshot for staffing and patient activity on any particular shift. Rosters and safe staffing levels are directly affected by each jurisdiction’s staffing models.

This Discussion Paper will outline recommendations for consideration of adopting an alternative safe staffing model, vs. what is currently used, for the ACT public health system being the Nursing Hours per Patient Day model. These recommendations are for consideration in the future since ACT Public Sector Nursing and Midwifery negotiations are currently underway to negotiate as a *minimum* adoption to the nurse/midwife to patient ratio model. These recommendations are derived from reviewing various staffing models and are based on best practice principles from within the literature. For the purposes of background information, staffing models used around Australia, as well as the United Kingdom (UK), New Zealand (NZ), and California within the United States of America will be explored.

Staffing Models: Jurisdictional Overview

Most States and Territories within Australia use the model Nursing Hours per Patient Day (NHpPD) within their public health system. This is with exception to Victoria and Queensland who have legislated nurse/midwife to patient ratios. The NHpPD model considers basic patient acuity and unit activity, breaking down patient care into ‘direct clinical care hours’, as well as available bed numbers (Nursing Roster Procedure, WA Country Health Services, 2020).

Australian Capital Territory (ACT)

The ACT currently uses the NHpPD model which was introduced in 2010 (Schedule 8 within ACT Public Sector (ACTPS) Nursing and Midwifery Enterprise Agreement 2017- 2019).

The ACT government’s Minister for Health and Wellbeing signed a Memorandum of Understanding (MoU) with the Australian Nursing and Midwifery Federation (ANMF) ACT Branch in 2018 agreeing to work with the union to develop nurse/midwife to patient ratios (White – Canberra Times 2018 cited within Nurse to Patient and Midwife to Patient Ratios – from Victorian amendment bill 2018).

New South Wales (NSW)

NSW uses the NHpPD model which was introduced in 2011. The NSW Nurses and Midwives' Association has been campaigning for the introduction of patient ratios as the "current Nursing Hours per Patient Day (NHpPD) system [is] not working... [resulting in] unrecognised missing nursing hours" and unsafe staffing levels, which then impacts patient care (Dragon, 2018).

Western Australia (WA)

WA also uses the NHpPD model which was introduced in 2002 (Twigg et al, 2011). The WA ANMF branch has been campaigning for legislated patient ratios (Olsen 2019 cited in Nurse to Patient and Midwife to Patient Ratios – from Victorian amendment bill 2018).

Victoria (VIC)

Victoria legislated patient ratios in 2015 and was the first jurisdiction within Australia to do so. However, nurse and midwife ratios of 1:4 (one nurse for 4 patients) were introduced on medical and surgical units several years before in 2001 before becoming mandated (Olley et al, 2018).

Queensland (QLD)

QLD legislated patient ratios in 2016 with nurse and midwife ratios of 1:4 for morning and afternoon shifts, and 1:7 for night shifts within all medical, surgical, and mental health units (Olley et al, 2018). QLD ratios are determined using the nurse/midwife to patient ratio model and by using the Business Planning Framework – BPF (Best Practice Rostering Guidelines: Queensland Health Nurses and Midwives, 2018).

United Kingdom (UK)

Wales was the first country in the UK to legislate nurse to patient ratios which were introduced in 2016 to provide "sufficient nurses to allow them time to care for patients sensitively" (Nurse Staffing Levels – Wales Act 2016: Operational Guidance, 2018, p.9). The UK model uses the National Acuity Tool (NHS Wales 2018), and care quality indicators, as well as professional judgement of nurses (Jones et al, 2018) to determine patient ratios and safe staffing levels. This means that the model bases nursing hours per patient acuity data using the two tools and professional judgement to determine patient ratios, which vary ward-to-ward depending on the number of patients and their care needs (Nurse Staffing Levels, Wales, ACT 2016: Operational Guidance).

The National Acuity Tool is quite specific and calculates nursing and midwifery care needs over several areas: assessment and observation, respiration, personal care, nutrition, hydration, cognition, communication, and medication requirements (Jones et al 2018). Similar staffing models were also introduced in England, Northern Ireland, and Scotland (Jones et al, 2018).

New Zealand (NZ)

In 2008 NZ adopted a new safe staffing model for nurses and midwives in public hospitals called the Care Capacity Demand Management (CCDM) Programme which is to be completely rolled across all 20 District Health Boards by June 2021. The model considers patient acuity and nurses input acuity information into a digital tool called TrendCare® (Duffield et al 2011). The tool determines accurate staffing levels and capacity that meets patient/women's care needs.

A stark difference between the CCDM model and the nurse/midwife to patient ratios staffing model is that in the CCDM model, team leaders are *not* included in staffing levels, whereas they *are* in traditional ratio models (Jones, 2020). It is noted however, that nursing and midwifery team leaders will also *not* be included in staffing levels under the proposed ACT ratio model.

United States of America (USA)

California was the first jurisdiction in the world to introduce nurse/midwife to patient ratios; the legislation was passed in 1999, but the ratios did not come into effect until 2004 (McHugh et al 2012). The most significant of the patient ratio changes were as follows: for step down units the patient ratios were 1:3, telemetry units (such as coronary care) and specialty care units became 1:4 (www.amnhealthcare.com/latest-healthcare-news/california-tightening-nurse-to-patient-ratios-in-2008/).

Nurse/Midwife Patient Ratios

Jones et al, 2020, explains that in the nurse/midwife to patient ratio model professional judgement is used to determine a 'service profile' which is what staffing decisions are based on. Nurse/midwife to patient ratios are based on the number of occupied beds and are to be always met (Jones, 2020). Patient ratios lead to increased levels of care for patients and safer working conditions for nurses and midwives. Ratios also improve the low retention rates of nurses and midwives that the workforce currently faces (Nurse to Patient and Midwife to Patient Ratios – from Victorian amendment bill 2018).

Furthermore, it is widely published that the higher number of registered nurses and midwives in relation to patient ratios equals a positive impact on patient outcomes. I.e., Decreased lengths of stay, less cardiac arrests, fewer adverse outcomes such as falls, hospital-acquired pneumonia, medication errors, unexpected deaths, (Duffield et al, 2011; Nurse to Patient Ratios: Questions and Answers, QLD Health, 2016; & Ratios Save Lives – ANMF, 2017; Safe Staffing and Patient Safety Literature Review, 2003).

Limitations of the model

"On the surface, ratios appear to be a quick fix to the very real staffing pain our nurses and midwives are suffering" (Jones, M, 2020, p.28). Nursing and midwifery workloads, acuity, and care hours, are not being taken into consideration within the nurse/midwife to patient ratio. Patient care needs differ between patients within the same ward environment (Jones, 2020).

Acuity staffing models on the other hand do take these differences into account (Harper & McCully, 2007). Patient ratios have also been said to reduce flexibility of units to “define their own staffing and patient needs” (Nurse to Patient and Midwife to Patient Ratios – from Victorian amendment bill 2018, p.4).

Nursing Hours per Patient Day (NHpPD)

The NHpPD model is complicated. It calculates ‘care hours’ delivered to patients by nurses and midwives. I.e., Patient care hours are calculated by dividing the total number of nursing care hours by all nursing staff (including EN, AIN’s), with direct care responsibilities by patient days (Min & Scott 2016). This is to determine predicted staffing levels in terms of the number of nurses required to provide direct clinical care (NSW Public Health System Nurses’ and Midwives’ State Award, 2019, clause 53 – section II, c).

As with the nurse/midwife to patient ratio staffing model, the NHpPD model also found that increasing the number of nurses looking after their allocated patients resulted in increased patient safety and reduced inpatient mortality (Twigg et al 2011).

Limitations of the model

The NHpPD staffing model cannot take into consideration patient demographics such as age, any language barriers, anxiety, the number of comorbidities they have, multiple admissions, discharges, and patient transfers. The way in which NHpPD care hours are calculated (as described above) can underestimate workload and the number of staff required to safely staff a shift (Min & Scott, 2016).

Patient Acuity Models

The staffing model of taking patient acuity data (unwellness) into consideration is “defined as the categorization of patients according to an assessment of their nursing care requirements”; these requirements are then re-evaluated every shift for accuracy according to the staffing model (Lazerowich, 1995 cited in Harper & McCully, 2007, p. 284). Acuity models have clearly defined components to capture multiple aspects of patient care that the nurse/midwife to patient ratio and NHpPD models cannot do alone (Tomic, 2017). I.e.

- Take into consideration complicated procedures
- Provide patient education
- Taking into consideration psychosocial interventions
- Oral medication administration during a shift (time)
- Take into consideration nursing time to deliver complicated intravenous medications

Acuity tools allow nurses and midwives to accurately describe the acuity of their patient ‘load’ e.g., patient allocation. The tools help to determine the most appropriate level of care that can be delivered to their patients (Harper & McCully, 2007).

The model considers patients or women as a person with individualized care needs. Vs. patients as a service profile (patient ratio model), or purely in care hours per patient day (NHpPD model). Patient Classification Systems (PCS) – a type of acuity model, covers the same categories as listed above.

The literature describing the PCS goes into more detail per category. I.e., Education encompassing requirements for complex patient care. Such as teaching patients about their disease processes, any procedures that may be scheduled, or educating them on preventive measures for their medical conditions. Psychosocial elements of care, such as taking into consideration patients with anxiety, mental disabilities, end-of-life care considerations, and palliative care. This also includes emotional needs of the patient and their extended family and close friends. Complicated intravenous (IV) medications include blood products, multiple IV antibiotics, inotropes, or hemodynamic monitoring of vascular access devices (Harper & McCully, 2007, & Tomic, 2017).

The PCS tool, rates patient care levels from 1-4 in acuity (4 being the highest score), which makes the “tool’s ability to differentiate significant patient characteristics” more equitable in terms of patient allocation as well (Harper & McCully, 2007, p.297). The tool in detail, ranks patients 1-4 in each category. The addition of each category (score) is then divided by 5 (representing each domain) to give them an overall ‘acuity ranking’. This number is then rounded up to the nearest whole number and is used for staffing and patient allocation (Harper & McCully, 2007).

Limitations of the model

One fault of the patient acuity model is that it is quite time consuming when calculating staffing levels in comparison to other staffing models. The literature also states that the model as expressed by nurse/midwife managers “has not been easy from an operational standpoint... [as well as] a perception of inadequate care” (Evans et al, 2008).

Discussion

When considering a safe rostering framework, issues of fatigue, psychological job demands, and burnout requires consideration for the framework to succeed. These issues and how they manifest will be explored below. The current workforce climate consists of patients who have become increasingly complex because of the aging population and their increasing comorbidities. Their hospital stays have become shorter, and care more intense, resulting in increased patient acuity and pace of work for our nurses (Welton, 2017, & Harper & McCully, 2007).

Nurses and midwives experience a negative impact on their health and well-being when faced with excessive workloads on a regular basis (Gifkins et al, 2020, & Holland et al 2019). This is amplified when short staffed or working on shifts with inappropriate skill mixes which all contribute to workload stress and fatigue (Fatigue Prevention, ANMF 2019). Fatigue is

enmeshed within the nursing and midwifery workforce as it is a result of working rotating rosters i.e., 'shift work' (Safe Staffing and Patient Safety Literature Review, 2003), and those that go on-call (Guide for Managing the risk of fatigue at work, Safe Work Australia, 2013), as it disrupts your normal internal body clock.

Workload stress extends past the physical demands of work to mental stress, whereby staff can develop mild symptoms of irritability through to mood changes resulting in developing or exacerbating existing depression (Gifkins et al, 2020, Gander et al, 2019, Safe Work Australia, 2013, & Safe Staffing and Patient Safety Literature Review, 2003). Being exposed to regular high levels of stress in the workplace from the demands of caring for high acuity patients lead to compassion fatigue, and poor work–life balance (Harper & McCully, 2007, & Higgins, 2020). Poor work–life balance can lead to negative job satisfaction, high staff turnover, burnout, and nurses and midwives leaving the professions entirely (Wynendaele et al 2021, & Korkbeek et al 2012).

M. Foley, former Victorian Minister for Mental Health, describes workload levels and reinforces concepts raised by his statement within the Parliament of Victoria when talking to the Safe Patient Care Amendment Bill 2018.

“International and local evidence . . . confirms a direct relationship between workload levels, patient outcomes and nurse-reported quality of care. In addition, increasing workloads have the potential to lead to burnout, absenteeism, job dissatisfaction, attrition, and poor retention. In summary, higher staffing numbers lead to better patient outcomes, and an increasingly engaged workforce” (Safe Patient Care – Nurse to Patient and Midwife to Patient Ratios: Amendment Bill 2018, 2019).

It is with these principles in mind that high patient acuity, which results in increased workloads for nurses/midwives, needs to be taken into consideration. Especially when reviewing the literature for best practice staffing principles to help keep our nurses and midwives safe.

A hybrid model between nurse/midwife to patient ratios and the acuity model for providing safe staffing levels in the ACT public health system is recommended. NZ and the UK have successfully implemented such a model as discussed earlier within this Discussion Paper. Please note although NZ uses the TrendCare© software for measuring patient acuity, this Discussion Paper is *not* advocating for the implementation of this system. Instead, consideration is sought for the acuity and ratio hybrid model itself in a form that works for the ACT public health sector. The proposed ACT model being put forward outlines processes for determining appropriate staffing levels and skill mix based on service demand.

Conclusion

As discussed above, the Patient Ratios (within the hybrid model) is what this Discussion Paper recommends as best practice.

A positive aspect of introducing the hybrid model with patient acuity in the forefront within inpatient units is that it can help allocate staff equitably (Harper & McCully, 2007). The greater the acuity of patient care needs means the higher number of nurses and midwives required to provide safe and effective care (Nurse to Patient Ratios: Questions and Answers, QLD Health, 2016).

Patient ratios (within the hybrid model) are favourable as the model leads to increased levels of care for patients/women and safer working conditions for all staff. This has been reported to improve low retention rates that the current health workforce is facing (Nurse to Patient and Midwife to Patient Ratios – from Victorian amendment bill 2018) as well as improve absenteeism. Patient and staff safety will be at the forefront by combining the two models: nurse/midwife to patient ratios and the acuity model. This will mean that healthcare units will be staffed according to each patient's individual care needs (acuity level) and a minimum staffing level applied on top as a further safeguard. The Patient Safety Classification System ranks patient acuity from a minimum of 1 to a maximum of 4 and this tool is recommended as it is a simple to use staffing tool that differentiates significant patient characteristics (Harper & McCully, 2007).

References

- Aitken, L; Ceron, C; Simonetti, M; Lake, E; Galiano, A; Garbarini, A; Soto, P; Bravo, D & Smith, H. (2018). Hospital Nurse Staffing and Patient Outcomes. *Revista Medica Clinica Las Condes*. 29(3), p322-327.
- Bailyn, L; Collins, R & Song, Y. (2007). Self-Scheduling for Hospital Nurses: an Attempt and its Difficulties. *Journal of Nursing Management*. 15, p.72-77.
- Best Practice Rostering Guidelines: Queensland Health Nurses and Midwives. (2018). *QLD Health*. Sourced by personal communications – Cullen, T, February 11, 2021.
- Butler, M; Schultz, T; Halligan, P; Sheridan, A; Kinsman, L; Rotter, T; Beaumier, J; Kelly, R & Drennan, J. Hospital nurse-staffing models and patient- and staff-related outcomes. *Cochrane Database of Systematic Reviews* (2019), Issue 4. Art. No.: CD007019. Published by John Wiley & Sons, Ltd.
- Deisell, M; Murat, D; Asfour, E; Asfour, S; & Baker, E. (2010). New ways of thinking about nurse scheduling. *Journal of Advances in Management Research*. 7(1), p.76-93.
- Duffield, C; Diers, D; O'Brien-Pallas, L; Aisbett, C; Roche, M; King, M & Aisbett, K. (2011). Nursing Staffing, Nursing Workload, the Work Environment and Patient Outcomes. *Applied Nursing Research*. 24, P. 244-255.
- Enterprise Bargaining Agreement Update. (2018). ACT Government [Cabinet Submission Number 18/322]
- Gander, P; O'Keeffe, K; Santos-Fernandez, E; Huntington, A; Walker, L & Willis, J. (2019). Fatigue and Nurses Work Patterns: An online questionnaire survey. *International Journal of Nursing Studies*. 98, p. 67-74.
- Gifkins, J; Johnston, A; Loudoun, R & Troth, A. (2020). Fatigue and recovery in shift working nurses: a scoping literature review. *International Journal of Nursing Studies*. 112, p.1-15.
- Harper, K & McCulley, C. (2007). Acuity Systems Dialogue and Patient Classification System Essentials. *Nursing Administration Quarterly*. 31(4), p.284-299.
- Holland, P; Leng Tham, T; Sheehan, C, Cooper, B. (2019). The impact of perceived workload on nurse satisfaction with work-life balance and intention to leave the occupation. *Applied Nursing Research*. 49, p.70-76.
- Introduction of Nursing and Midwifery Ratios (2021). Canberra Health Services. (MCHS21/102).
- Jones, M (personal communication, February 24, 2021) commenting on NZ staffing models. *New Zealand Nurses Organisation*.
- Jones, M. Are Ratios Really the Answer? (2020). *Kai Tiaki Nursing New Zealand*. 26(5), p. 26-28. Sourced by personal communications – Otzen, A, February 24, 2021.
- Jones, A; Whyley, H; Bevan, L & Doyle, J. (2018). Development of approaches and legislation to optimize nurse staffing levels. *Nursing Standard*. 33(5), p. 27-31.
- Kortbeek, N; Braaksma, A; Burger, C; Bakker, P & Boucherie, R. (2012) Flexible nurse staffing based on hourly bed census predictions. *International Journal of Production Economics*. 161, p.167-180.
- McHugh, M; Brooks Carthon, M; Sloane, D; Wu, E; Kelly, L and Aiken, L. (2012). Impact of Nurse Staffing Mandates on Safety-Net Hospitals: Lessons from California. *The Milbank Quarterly Journal*. 90(1), p.160-186.
- Min, A & Scott, L. (2016). Evaluating Nursing Hours per Patient Day as a Nurse Staffing Measure. *Journal of Nursing Management*. 24, p.439-448
- Olley, R; Edwards, I; Avery, M & Cooper, H. Systematic review of the evidence related to mandated nurse staffing ratios in acute hospitals. (2019). *Australian Health Review*.

43, p.288–293

- Ratios Framework Project (2019). ACT Health Directorate. (MIN19/1265).
- Skinner, N & Chapman, J. (2013). Work-life balance and family friendly policies. *Evidence Base*. 4, p.1-17.
- Tomic, K. (2017). *Nursing Assignments Based on Patient Acuity: the Road to Nursing Job Satisfaction*. Evidence-Based Practice Project Report, Valparaiso University
- Twigg, D., et al. (2011). The impact of the nursing hours per patient day (NHPPD) staffing method on patient outcomes: a retrospective analysis of patient and staffing data. *International Journal of Nursing Studies*. 48(5): 540-548
- Welton, J. (2017). Measuring Patient Acuity: Implications for nurse Staffing and Assignment. *Journal of Nursing Administration*. 47(10), p.471.
- Wynendaele, H; Gemmel, P; Pattyn, E; Myny, D & Trybou, J. (2021). Systematic review: What is the impact of self-scheduling on the patient, nurse and organization? *Journal of Advanced Nursing*. 77(1), p.47-82

Grey Literature Searches

- Achieving Work Life Balance: Retention and Attraction Strategies for WA Health. (2006). WA Health. [accessed 17/02/2021]
<http://www.health.wa.gov.au/worklifebalance/docs/retention.pdf>
- ACT Public Sector (ACTPS) Nursing and Midwifery Enterprise Agreement 2017- 2019. *Australian Nursing and Midwifery Federation*. (“Section 8” Rostering Guidelines). [accessed 17/02/2021]
www.fwc.gov.au/document/agreement/AE503830
- CCDM Programme: Safe Staffing Healthy Workplaces – New Zealand. (2017). [accessed 24/02/2021] www.ccdm.health.nz/
- Dragon, N. (2018). NSW Nurses and Midwives demand Mandated Nurse to Patient Ratios. *Australian Nursing and Midwifery Journal*. [Accessed 03/03/2021] <https://anmj.org.au/nsw-nurses-and-midwives-demand-mandated-nurse-to-patient-ratios/>
- Evans, J; Pati, D, and Harvey, T (2008, March 31). Rethinking Acuity Adaptability. *Healthcare Design Magazine*. [accessed 25/05/21]
- Fatigue. (nd). Safe Work Australia. www.safeworkaustralia.gov.au/fatigue
- Fatigue Prevention Policy. (2019). *Australian Nursing and Midwifery Federation* [accessed 17/02/2021] https://anmf.org.au/documents/policies/P_Fatigue_prevention.pdf
- Flexible Working Arrangements Policy: WA Country Health. (2021) [accessed 22/02/2021] wacountry.health.wa.gov.au/fileadmin/sections/policies/Managed/Flexible_Working_Arrangements_Policy_TS4KSNFPVEZQ_210_19723.pdf
- Flexible Workplaces Policy Guideline Version 2.1. (2018). *SA Health*. [accessed 17/02/2021] www.sahealth.sa.gov.au/wps/wcm/connect/f4746e80405094f7846ae7deb8488407/Guideline+-+Flexible+Workplaces+Policy+-+V2+Mar2017.pdf?MOD=AJPERES
- Framework for Rostering in NSW Health. 2018-2023. [accessed 17/02/2021] www.health.nsw.gov.au/Rostering/Publications/framework-for-rostering.pdf
- Guide for Managing the Risk of Fatigue at Work. (2013). *SafeWork Australia* [accessed 17/02/2021] www.safeworkaustralia.gov.au/doc/guide-managing-risk-fatigue-work
- Higgins, A. (2020). *Abstract: Work-Life Balance Best Practices*. Doctoral Thesis, Walden University. [Accessed 17/02/21] <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=10181&context=dissertations>

- Improving Nurses' Work-Life Balance: Insights from a team-based rostering pilot. (2019). *Timewise: NHS, UK*. [accessed 17/02/2021] <https://timewise.co.uk/article/improving-nurses-work-life-balance/>
- Leave Matters for the NSW Health Service (2019). [accessed 17/02/2021]. https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2019_010.pdf
- NHPPD Application Manual – Guiding Principles, WA Health, 2019. [Accessed 22/02/2021] https://ww2.health.wa.gov.au/Articles/N_R/Nursing-hours-per-patient-day
- NSW Public Health System Nurses' and Midwives' State Award, 2019. [Accessed 17/03/2021] www.nswma.asn.au
- Nurse Staffing Levels (Wales) Act 2016: Operational Guidance. (2018). [accessed 22/02/2021] www.wales.nhs.uk/sitesplus/documents/863/Enc.%204%20Operational%20Handbook%20%2027%20Feb%202018%20FINAL%20for%20publication.pdf
- Nursing and Midwifery Services Best Practice Rostering and Staff Deployment Principles. *NT Health*. (2012). [accessed 17/02/2021] www.anmfnt.org.au%2Fsystem%2Ffiles%2Fresources%2Ffiles%2Fbest_practice_rostering_and_staff_deployment_principles_1.pdf%3Fdownload%3D1&usg=AOvVaw2w7x57HAzzl1E5rtMytxqm
- Nursing Hours per Patient Day: How is it used? WA Health, 2017). [accessed 22/02/2021] https://ww2.health.wa.gov.au/Articles/N_R/Nursing-hours-per-patient-day
- Nursing Roster Procedure. *WA Country Health Service*. (2020). [accessed 17/02/2021] http://www.wacountry.health.wa.gov.au/fileadmin/sections/policies/Managed/Nursing_Roster_Procedure_TS4KSNFPVEZQ_210_6343.pdf
- Nurse to Patient Ratios: Questions and Answers, QLD Health, 2016 [accessed 23/02/2021] www.health.qld.gov.au/_data/assets/pdf_file/0027/357453/ratiosqa.pdf
- Ratios Save Lives. (2017). *Australian Nursing and Midwifery Federation – ACT Branch* [accessed 17/02/2021] www.anmfact.org.au/wp-content/uploads/2018/03/Ratios-save-livesFINAL.pdf
- Rostering Guide for Safe Staffing Version 1.0. (2011). *Tasmania Health*. [accessed 17/02/2021]. <https://web.anmftas.org.au/wp-content/uploads/2011/06/Microsoft-Word-Safe-Staffing-Rostering-Guide-Version-1-0.pdf>
- Rostering Policy. (2019). *Australian Nursing and Midwifery Federation*. [accessed 17/02/2021] https://anmf.org.au/documents/policies/P_Rostering.pdf
- Rostering Resource Manual Version 2.1. (2016). *NSW Health*. [accessed 04/01/2021]. www.health.nsw.gov.au/Performance/rostering/Pages/rostering-resource-manual.aspx
- Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Amendment Bill 2018. (2019). *Department of Parliamentary Services Victoria*. [accessed 17/02/2021] <https://parliament.vic.gov.au/publications/research-papers/send/36-research-papers/13887-safe-patient-care-nurse-to-patient-and-midwife-to-patient-ratios-amendment-bill-2018>
- Safe Staffing and Patient Safety Literature Review - Report (2003) *The Australian Council for Quality and Safety in Health Care* – prepared by The Australian Resource Centre for Hospital Innovations. [accessed 17/02/2021] https://www.safetyandquality.gov.au/sites/default/files/migrated/s_stafplitrev.pdf
- Safe Staffing User Manual: Nursing Hours per Patient Day Model (NHPPD) Version 3. (2011). *Tasmania Health*. [accessed 17/02/2021] <https://web.anmftas.org.au/wp-content/uploads/2011/06/Safe-Staffing-User-Manual-NHPPD-Version-3.pdf>

- World Health Organisation (WHO)'s *Sixty-ninth World Health Assembly update – World Health Assembly* [accessed 17/02/2021] www.who.int/news/item/27-05-2016-sixty-ninth-world-health-assembly-update

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