e-brief

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Nurse and midwife staffing models

by Tom Gotsis

1. Introduction

Thousands of nurses and midwives protested outside the NSW Parliament in 2022 in support of increased pay and improved working conditions.[1] Central to the claim for improved working conditions is the introduction of legislated nurse-and-midwife-to-patient ratios (**LNMPRs**).

The NSW Nurses and Midwives Association (the Association) has expressed an "unwavering commitment to fight on for ratios in NSW"[2], and claims that LNMPRs are needed in NSW because "there are simply not enough nurses or midwives being rostered on each shift, resulting in workplace fatigue and dangerous workplace conditions."[3]

The NSW Government claims that the current staffing model used by NSW public hospitals, known as Nursing Hours Per Patient Day (**NHPPD**), "produces a more flexible ratio" than "rigid" LNMPRs and "helps hospitals calculate the minimum number of nurses needed to deliver safe and effective care".[4] The NSW Government has also said that introducing LNMPRs in NSW would cost a billion dollars.[5]

Victoria introduced LNMPRs in 2015 and Queensland introduced them in 2016. A major study has recently been published into the effectiveness of LNMPRs in Queensland hospitals. The ACT, Northern Territory, Tasmanian and Western Australian Governments have undertaken to review the NHPPD model and the South Australian Government has promised to introduce a Bill for LNMPRs.

On 31 March 2022, Greens MLC Cate Faehrmann gave notice of an intention to introduce the Health Services Amendment (Nurse-to-Patient and Midwife-to-Patient Ratios) Bill 2022 (the 2022 Bill) into the Legislative Council. At the time of writing, the text of the 2022 Bill was not available.

In light of these developments, this e-brief discusses:

- staffing models used across Australia;
- key features of LNMPRs and NHPPDs;
- stakeholder arguments;
- reviews and research findings; and
- costings

2. Staffing models used across Australia

Table 1 shows the public sector nurse and midwife staffing models used in Australian hospitals. In addition to LNMPRs and NHPPDs, Table 1 refers to the Mandated Minimum Ratios (**MMRs**) that apply to select hospital services in the Australian Capital Territory and South Australia. Examples of areas in which MMRs apply include general medical wards, surgical wards and acute aged care. Like NHPPDs, MMRs are created by industrial instruments, rather than legislation. Table 1 also notes where there has been agreement to review the operation of a particular staffing model.

Table 1: Public sector nurse and midwife staffing models (Aus.)

State/Territory	Staffing model	Source
Australian Capital Territory	NHPPD. MMRs introduced in 2021-2022. Review to be undertaken.	*ACT Public Service Nursing and Midwifery Enterprise Agreement 2020-2022*, clause 72.10.7, clause 75, Schedule 10; and Schedule 10(5) (agreement to review).
Northern Territory	NHPPD. Review to be undertaken.	*Northern Territory Public Sector Nurses and Midwives 2018-2022 Enterprise Agreement*, clause 66 (includes agreement to review).
New South Wales	NHPPD for general inpatient, palliative care, rehabilitation and inpatient adult acute mental health. Separate requirements apply in other settings. Otherwise, determined by application of reasonable workload principles.	*Public Health System Nurses' and Midwives' (State) Award 2021*, clause 53. The reasonable workload principles are set out at clause 53(iii)(a)-(j).
Queensland	LNMPRs for acute adult wards and State aged care facilities. LNPMRs operate in the context of the Business Planning Framework (BPF), which is Queensland's industrially mandated methodology for nursing and midwife workload management.	*Hospital and Health Boards Act 2011 (Qld)*, section 138 and *Hospital and Health Boards Regulation 2012 (Qld)*, clauses 30B and 30D. *Nurses and Midwives (Queensland Health and Department of Education) Enterprise Agreement 2018*, clause 34. Clause 34.1 discusses the application of the BPF.

State/Territory	Staffing model	Source
South Australia	MMR in most settings, NHPPD in remaining settings.	*Nursing/midwifery (South Australian Public Sector) Enterprise Agreement 2020*, clause 3.2 and Appendices 1-5.
Tasmania	NHPPD. Undertaking to review NHPPD.	*Nurses and Midwives (Tasmanian State Service) Agreement 2019*, clause 18. Clause 18.2 sets out the agreement to review.
Victoria	LNMPRs. Individual sections set out specific ratios for specific settings. Extensive application, as ratios apply to many settings.	*Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015* (the "2015 Act"). *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Regulations 2015*.
Western Australia	NHPPD. Undertaking to review.	*Registered Nurses, Midwives, Enrolled (Mental Health) and Enrolled (Mothercraft) Nurses Industrial Agreement 2020*, clause 10.

Notes: NHPPD = Nursing Hours Per Patient Day. MMR = Mandated Minimum Ratios (under enterprise agreements). LNMPR = Legislated Nurse and Midwife to Patient Ratio. BPF = Business Planning Framework.

As shown in Table 1, LNMPRS are used in Queensland and Victoria. South Australia primarily uses MMRs; while the remaining jurisdictions primarily use NHPPDs. There is agreement to review staffing models in almost all the jurisdictions that use NHPPDs as their primary staffing model.

In some instances, reasons are provided for the agreement to review. For example, clause 18.1 and 18.2 of the *Nurses and Midwives (Tasmanian State Service) Agreement 2019* state:

> It is recognised that while the NHPPD model provides flexibility to respond to changing patient acuity, it can be hard to understand and monitor on a daily basis. …There is a commitment to review the ratio model with NHPPD collaboratively with the unions through a working group to capture the advantages of the current NHPPD model with the ease and simplicity of a daily ratio model.

3. Key features of the different staffing models

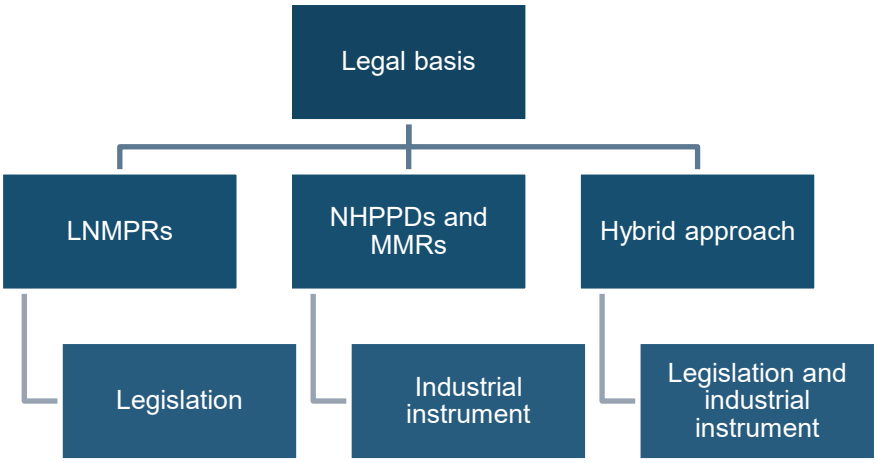
3.1 Legislation versus enterprise agreements

LNMPRs and NHPPDs can be categorised in terms of whether they are based in legislation or an industrial instrument (Figure 1). LNMPRs are enacted by legislation. In the case of Victoria, the legislation is a principal Act, the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*; while in Queensland the legislation is a regulation, the *Hospital and Health Boards Regulation 2012 (Qld)*. In contrast, NHPPDs and MMRs are the product of enterprise agreements. In NSW, NHPPDs are based on the *Public Health System Nurses' and Midwives' (State) Award*.[6]

It should be noted, however, that hybrid approaches can be used. For instance, legislated ratios may apply in some settings and enterprise

agreements apply in others; or legislated ratios can be treated as minimum ratios and supplemented using acuity data.

Figure 1: Legal basis of LNMPRS, MMRs and NHPPDs



Three important issues arise from whether staffing models have a predominately legislative, rather than industrial, base. Those issues are: (i) scrutiny; (ii) duration; and (iii) compliance and enforcement.

3.1.1 Scrutiny

The creation, amendment or removal of LNMPRs requires the enactment of legislation, and therefore entails parliamentary scrutiny. The creation, amendment or removal of NHPPDs and MMRs in NSW involves scrutiny from the NSW Industrial Relations Commission, as it requires the making, variation or rescission of an award by the NSW Industrial Relations Commission.[7]

3.1.2 Duration

NHPPDs and MMRs apply during the term of the industrial instrument under which they have been created (unless the instrument is varied or rescinded). For instance, the *Public Health System Nurses' and Midwives' (State) Award 2022* commenced on 1 July 2021 and remained in force until 30 June 2022.[8] However, the parties to the State Award agreed that the staffing models provided under the Award "may be reviewed and amended from time to time by agreement and that the Award may be varied by consent to reflect any such agreement".[9]

Once enacted, LNMPRs apply until subsequent legislative amendment or repeal. LNMPRs may, however, be varied if variation is permitted under the terms of the enabling legislation. For instance, section 36(1) of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)* states that the operator of a hospital and the relevant union may enter into an agreement to vary a ratio.

3.1.3 Compliance and enforcement

The compliance and enforcement of LNMPRs is dealt with under a legislative instrument; whereas the compliance and enforcement of NHPPDs and

MMRs is dealt with under the relevant industrial instrument. The different arrangements in Victoria, Queensland and NSW are described below.

Victoria: The relevant Victorian provisions are all located in the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)* and the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Regulations 2015.*

The Secretary of the Department of Health may give a Safe Patient Care Compliance Direction (SPCCD) to the operator of a hospital to comply with a ratio or ratio variation.[10] The operator of a hospital to which a SPCCD applies must comply with that direction.[11] A nurse or midwife who works at a hospital (or a relevant union) may notify the operator of the hospital of an alleged breach of a ratio (or a ratio variation).[12] The notification constitutes a local dispute[13] that must be resolved in accordance with the prescribed resolution procedures.[14] If a local dispute cannot be resolved in accordance with the prescribed resolution procedures, a party to the dispute may apply to have the matter referred to the Magistrates' Court.[15] The Magistrates' Court can resolve matters via declarations, injunctions and civil penalties.[16]

Queensland: The relevant Queensland provisions are located in the *Nursing and Midwifery Workload Management Standard* (the Queensland Standard); which was made under section 138E of the *Hospital and Health Boards Act 2011 (Qld)*. A standard made under section 138E is subordinate legislation. The Queensland Standard established a governance and reporting framework; as well as a five-stage escalation process for the resolution of workplace management concerns.[17] At stage five, a party may refer an unresolved matter to the Queensland Industrial Relations Commission for conciliation and, if necessary, arbitration.

NSW: Grievances relating to workload or staffing are subject to the procedure set out in clause 53(vii) of the *Public Health System Nurses' and Midwives' (State) Award* 2021. The grievance procedure involves first notifying the manager of the local ward or unit. Unresolved matters then progress, depending on the structure of the particular health setting, to the appropriate Nurse/Midwife Manager, Director of Nursing or Local Health District Director of Nursing. Matters that remain unresolved progress to the Reasonable Workload Committee of the public hospital and then to the Local Health District or Statutory Health Corporation.[18] If this process fails to resolve the grievance, the dispute resolution provisions of clause 48 apply.

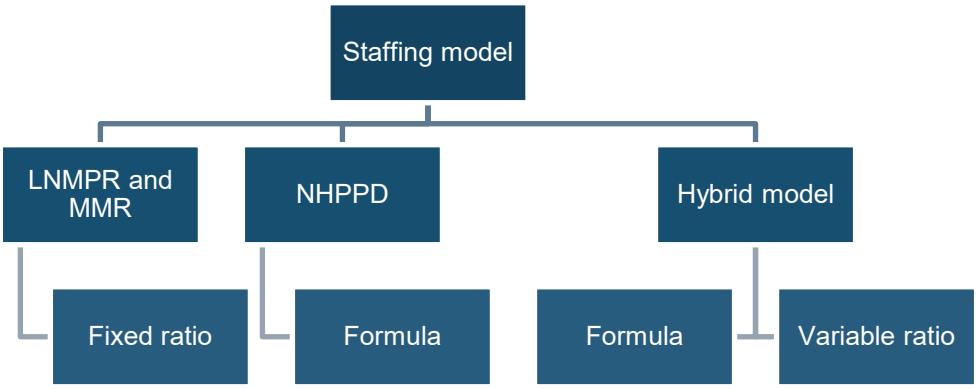
Clause 48(ii)-(iv) requires a series of discussions between nurses and management at the hospital, Local Health District, Departmental or Ministry level, depending on the nature and extent of the issue. Time limits apply to the discussion. If, after these discussions, the matter remains unresolved, or the time limits have been exceeded, the matter may be referred to the Industrial Relations Commission for resolution. Under the *Industrial Relations Act 1996*, the Industrial Relations Commission must attempt to resolve a dispute by conciliation before arbitration.[19] If the matter is arbitrated, the orders that the Industrial Relations Commission may make include giving a direction to the parties or making or varying an Award.[20]

3.2 Application of staffing models: ratios versus formulas

Staffing models can be categorised in terms of whether they are applied via a ratio or a formula. As shown in Figure 2, LNMPRs and MMRs use fixed ratios; whereas NHPPDs use formulas. Hybrid staffing models calculate

staffing levels based on changes in patient acuity, either by way of a formula or variable ratio. Hybrid models are discussed separately later (at 5.1).

Figure 2: Application of staffing models



3.2.1 Ratios

The following discussion focuses on the application of statutory ratios in Victoria and Queensland.

Victoria: Victoria has enacted over 50 LNMPRs in 20 sections of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*. Each section prescribes ratios for specific hospital settings and specific nursing shifts.

Appendix 1 sets out the sections of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)* which establish nurse to patient ratios; the terms of the ratios; and the hospital settings and nursing shifts to which the ratios apply. A distinguishing feature of these ratios is their high degree of specificity. Each legislative section provides a simple ratio for a specific hospital setting. Most ratios, but not all, also apply to specific shifts. For instance, section 21 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)* states:

> The operator of a hospital must staff a ward that is a coronary care unit as follows—
>
> (a) on the morning shift or the afternoon shift—
>
> (i) one nurse for every 2 patients; and
>
> (ii) one nurse in charge;
>
> (b) on the night shift, one nurse for every 3 patients.

Appendix 2 sets out the sections of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)* which establish midwife to patient ratios; the terms of the ratios; and the hospital settings and nursing shifts to which the ratios apply. For the purposes of midwife to patient ratios, section 30 defines the term “patient” as not including newborn infants.

The ratios are to be applied to every ward in each hospital to which they are specified to apply, on the actual number of patients in each ward.[21] Special requirements apply for mixed wards.[22] A ratio "is a minimum requirement only and is not intended to prevent the operator of a hospital from staffing a ward with additional nurses or midwives beyond the number required by the ratio".[23] A ratio can be applied in a flexible way; with more of the nurses assigned under a ratio allocated to higher care needs patients and fewer of the nurses assigned under a ratio allocated to lower needs patients.[24] The Victorian Government notes that this flexibility "may legitimately result in some nurses and midwives either being assigned fewer or more patients than prescribed in the relevant ratio".[25]

Where demand for beds is higher than expected, beds in addition to the beds that have been staffed under a ratio may only be occupied if nurses or midwives are available to comply with the ratio.[26] Alternatively, if the number of patients falls below the number for which a ward is staffed in accordance with a ratio, the number of nurses or midwives may be reduced before the commencement of a shift.[27]

A rounding method is set out in section 12 to cover situations where the actual or expected number of patients or beds is not divisible into a whole number following the application of a ratio. In general, section 12 requires "rounding up" (the ward to be staffed with an additional nurse or midwife).

The operator of a hospital and a relevant union may enter into an agreement to vary a ratio (or the rounding method set out in section 12).[28] The procedures for entering into an agreement to vary a ratio are prescribed in clause 10 of the *Safe Patient Care (Nurse To Patient and Midwife To Patient Ratios) Regulations 2015 (Vic)*. In any proposal to vary a ratio, the primary consideration is the impact of the proposed variation on the quality of patient care.[29] Additional considerations are prescribed in clause 6 of the *Safe Patient Care (Nurse To Patient and Midwife To Patient Ratios) Regulations 2015 (Vic).*

Queensland: Queensland has enacted three LNMPRs in clause 138B of the *Hospital and Health Boards Regulation 2012 (Qld)*.[30] The ratios apply to acute adult wards in the public health facilities, as indicated in Schedule 2A. Three types of acute adult wards are specified in Schedule 2A: "medical", "surgical" and "mental health".

Appendix 3 sets out the three ratios prescribed by clause 138B; the terms of the ratios; the nursing shifts to which the ratios apply, and the relevant hospital settings.

A nurse or midwife is taken to be engaged in delivering a health service only if they are "directly involved" in providing care to one or more of the patients receiving the service.[31] If the application of the ratios results in a number less than one, the resulting number is taken to be one.[32] Otherwise, if the resulting number is not a whole number, it must be rounded to the nearest whole number.[33]

The ratios are the "minimum number of nurses or midwives who must be engaged in delivering health services to patients in the ward".[34] The Queensland Government publishes data on compliance with the ratios.

Queensland's Business Planning Framework (BPF) is the industrially mandated workload management methodology used by Queensland Health. The BPF applies to the non-prescribed health facilities[35] and also operates in concert with Queensland's LNMPRs to achieve the shared objective of appropriate nurse and midwife staffing levels. In particular, the BPF states:

> In addition to legislated minimum nurse to patient ratios, each ward/unit will define its notional nurse/midwife to patient ratios specifying the nursing/midwifery hours per patient day (or occasions of service) they are required to provide which will vary in accordance with changing acuity and activity … Where the notional nurse/midwife to patient ratio is higher than the legislated minimum nurse to patient ratios, the notional ratio derived through the BPF methodology must still be adhered to.[36]

According to the Office of the Chief Nursing and Midwifery Officer (Qld), the State's existing LNMPRs represent "the first stage of implementation".[37] Public hospitals and wards not listed in Schedule 2A were not part of the first stage of implementation because of:

> … their lower risk and acuity levels, their use of alternative models of care, the multi-purpose nature of wards within certain facilities and the need for more time to carefully consider appropriate ratios for some wards or even the use of more nurses than those proposed under the ratios such as 1:2, rather than 1:4. …[38]

Findings from the assessment of the initial stage of implementation will inform future stages. [39]

3.2.2 Formulas

The following discussion focuses on NSW's NHPPDs. Under clause 53 of the *Public Health System Nurses' and Midwives' (State) Award 2021*, NHPPDs apply to some settings and not others.

NHPPDs apply in "nursing hour wards and units", namely:

- General inpatient wards;
- Dedicated palliative care wards/units;
- Dedicated rehabilitation wards/units; and
- Inpatient adult acute mental health wards/units.[40]

NHPPDs do not apply to settings which have been excluded from the definition of "general inpatient wards". Those excluded settings include:

- All types of critical care units:
    - Intensive care units;
    - High dependency units;
    - Coronary care units;
    - Burns units;
    - Neo-natal intensive care units;
- Medical/surgical acute care units; and
- All midwifery services.[41]

NHPPDs also do not apply when specific alternate staffing arrangements have been provided under clause 53 Sections III to VIII. The settings for which alternative staffing arrangements have been provided include

maternity services, perioperative services, inpatient mental health units and emergency departments.[42]

In settings where NHPPDs or specific alternate staffing arrangements do not apply, staffing arrangements are determined in accordance with the general "reasonable workload principles" set out in clause 53(iii)(a)-(j). For instance, critical care units (including intensive care units) are one of the settings where staffing arrangements are determined in accordance with the general "reasonable workload principles".

Appendix 4 presents the NHPPDs set out in clause 53 Section II(d)-(j). As shown in Appendix 4, NHPPDs are calculated over the course of one week, rather than a particular shift.

The *Public Health System Nurses' and Midwives' (State) Award 2021* notes that a NHPPD of six applied to 26 patients results in a need for 156 nursing hours per day or 1,092 nursing hours per week.[43] It further notes that NHPPDs "may also be expressed as an equivalent ratio which provides the same nursing hours over a week".[44] It suggests:

1. A NHPPD of 6.0 can provide sufficient nursing hours to provide am/pm/night equivalent ratios of 1:4/1:4/1:7 across seven days, as well as the option of some shifts with a nurse in charge who does not also have an allocated patient workload.
2. A NHPPD of 5.5 can provide sufficient nursing hours to provide am/pm/night equivalent ratios of 1:4/1:5/1:7 across seven days, as well as the option of some shifts with a nurse in charge who does not also have an allocated patient workload.
3. A NHPPD of 5.0 can provide sufficient nursing hours to provide am/pm/night equivalent ratios of 1:5/1:5/1:7 across seven days, as well as the option of some shifts with a nurse in charge who does not also have an allocated patient workload.[45]

Only nurses providing direct clinical care are included in the NHPPD.[46] Specific provisions allow for members of the local Reasonable Workload Committee to make a written request to the Nursing Unit Manager for a spot check to be conducted to confirm that the NHPPDs are being applied.[47] The spot check must commence within seven days and lasts for a period of four weeks. If, at any time during the spot check or at its conclusion, it is established that the provided NHPPD falls short of the specified NHPPD then action must immediately commence to rectify the shortfall.

4. Stakeholder arguments

4.1 NSW Government

The NSW Government has not supported nurse-to-patient ratios. The reasons underlying the Government's position were articulated in December 2020, in a response to a petition calling for the introduction of nurse-to-patient ratios.[48] In this response NSW Health Minister Brad Hazzard MP stated:

> NSW Health already uses a rostering method that produces a ratio in certain public hospital wards, described in the Public Health System Nurses' and Midwives' (State) Award as Nursing Hours Per Patient Day (NHPPD). This method effectively produces a more flexible ratio than the rigid approach of mandated nurse to patient ratios, where the complexity of a hospital and its patients determines staffing levels, not its location.

> The current NHPPD methodology helps hospitals calculate the minimum number of nurses needed to deliver safe and effective care. NSW Health has advised there is no conclusive evidence base that demonstrates shift by shift ratios are better than NHPPD. A fixed shift ratio would limit NSW Health's ability to use professional nursing judgement to tailor staffing to patient care requirements.
>
> Safe and effective staffing involves more than just numbers of staff. It is about making sure there is the right number of nurses and midwives where we need them.[49]

Minister Hazzard then noted that in 2019 the NSW Government had committed to funding an additional 5,000 nurses and midwives, and had further committed to increasing the NHPPD requirement in Peer Group B and C hospitals to six hours over four years from 2019.[50]

In February 2022, Minister Hazzard said that LNMPRs would cost a billion dollars; with that expenditure occurring in the context of the NSW Government already spending more than one-quarter of the State's Budget on health.[51] Minister Hazzard added that LNMPRs are inflexible and would result in "nurses sitting in wards where there are no patients".[52]

A spokesperson for NSW Health stated that NHPPDs considered the number of patients, their complexity, acuity and care needs "while also allowing for the professional judgement of nurses, nurse managers and workforce managers to adjust staffing levels".[53]

The NSW Government has committed to increasing the number of nurses and midwives in public hospitals.[54] It has also stated: "Between 2012 and 2021, the nursing and midwifery workforce in NSW increased by 9,599 full-time equivalent (FTE) staff, or 23%, to 51,794 (FTE)."[55]

4.2 Other political parties

During its 2019 election campaign, Labor announced that it would introduce nurse-to-patient ratios if it won the State election[56] and requested a Policy Costing on nurse-to-patient ratios from the NSW Parliamentary Budget Office (PBO). As discussed later (at 6), the PBO costing stated that introducing ratios would cost $1.3 billion over seven years, and then approximately $590 million per annum thereafter.[57]

In 2021, Labor MLCs voted in favour of a motion to support the Association's calls for better pay and conditions. The conditions referred to in the motion specifically included:

> … mandated shift-by-shift nurse to patient staffing ratios of one to three in emergency and paediatrics wards, one to four during day shifts and one to seven during night shift.[58]

Two Labor Party MLCs have recently opposed recommendations to introduce nurse-to-patient ratios in rural, regional and remote hospitals.[59] Those recommendations were opposed during the Legislative Council's Inquiry into health outcomes and access to health and hospital services in rural, regional and remote NSW. The Inquiry was established on 16 September 2020 and published its report on 5 May 2022.[60]

The recommendations were proposed by Cate Faehrmann MLC (NSW Greens) and Emma Hurst MLC (Animal Justice Party) to ensure safe patient care and a safe working environment for staff.

A spokesperson for Opposition Leader Chris Minns MP subsequently stated that Labor would need to examine the proposal for LNMPRs further before being able to support their introduction.[61]

4.3 Nursing associations

The position of the Association is set out in its Award Claim 2022. The Association's Award Claim 2022 states that the NHPPD staffing formula is "no longer fit for purpose" because it has not adequately responded to the changing needs of the health system.[62] In particular, the Association claims that the NHPPD staffing formula has over time, and especially during the pandemic, resulted in "poor staffing levels" and, consequently, "inferior care being provided to patients".[63] The Association further claims that LNMPRs are necessary to prevent a reduction in the public health system's nursing and midwifery workforce:

> Nurse-to-patient ratios and improved maternity staffing are necessary to ensure current staff are retained and help prevent more nurses and midwives from leaving the public health system, due to burn out, early retirement or seeking better conditions and pay in other states or territories.
>
> Ratios will safeguard the future health workforce, ensuring less experienced nurses and midwives receive the clinical support and guidance needed early in their careers. Early career nurses and midwives or novice practitioners should not be put in a position where they are the most senior nurse or midwife on shift and a new shift by shift staffing model can protect against this happening. [64]

Appendix 5 sets out the ratios claimed by the Association in its Award Claim 2022. The ratios "set a minimum, not maximum, benchmark for the number of staff".[65] The ratios claimed for critical care settings reflect the Australian College of Critical Care Nurses (ACCCN) Workforce Standards for Intensive Care Nursing.[66] Tailored approaches (no ratios) have been proposed for perioperative services, community health and community mental health services, maternity services and outpatient clinics.[67]

5. Reviews and research findings

5.1 ACT discussion paper (2021)

In November 2021, the ACT Government published a discussion paper, *Review of Nursing and Midwifery Staffing Models*. The discussion paper considered the features, strengths and weaknesses of NHPPDs, LNMPRs and Patient Acuity Models (PAMs).

The discussion paper defined PAMs as staffing models that *regularly use updated acuity data* to calculate (via a formula or algorithm) the appropriate staffing level for every shift.[68] This can occur with the assistance of specialist computer programs, such as Trend Care. Accordingly, PAMs generally can be categorised as a formula-based staffing model, along with NHPPDs.

Table 2 sets out the strengths and weaknesses identified by the discussion paper in its comparison of NHPPDs, LNMPRs, and PAMs. A key issue

considered by the discussion paper was the potential effect of particular staffing models on nurse and midwife occupational health, safety and wellbeing; as well as workforce retention rates.[69]

Table 2: Comparison of NHPPDs, LNMPRs and PAMs[70]

	NHPPDs	LNMPRs	PAMs
Benefits	• Can be used to increase staffing numbers • Using NHPPDs to increase staffing will also lead to improved patient outcomes	• Provides increased levels of care for patients • Improved patient outcomes • Safer working conditions for nurses and midwives • Improve the existing low retention rates of nurses and midwives	• Captures multiple aspects of patient care every shift • Acuity tools allow nurses and midwives to accurately determine the acuity of their total patient allocation
Limitations	• Cannot take into account patient acuity or demographics • Can underestimate workload and the number of staff needed to safely staff a shift	• Workloads, acuity and care hours are not being taken into consideration • Flexibility for units to define their own staffing and patient needs may be reduced	• Time consuming to use • Difficult to implement • Literature refers to a perception of inadequate care

The discussion paper recommended a "hybrid model between nurse/midwife to patient ratios and the acuity model for providing safe staffing levels in the ACT public health system."[71] Its recommendation was primarily a response to the "… increased patient acuity and pace of work" that nurses are dealing with due to such factors as an ageing population and shorter hospital stays.[72]

The discussion paper noted that the United Kingdom and New Zealand had implemented such hybrid models.[73] For instance, the United Kingdom's hybrid model "… uses the National Acuity Tool, and care quality indicators, as well as professional judgement of nurses…to determine patient ratios and safe staffing levels".[74]

5.2 Research

5.2.1 Association between staffing levels and patient outcomes

There is a substantial and growing body of research about the association between nurse/midwife staffing levels and patient outcomes. Overall, this

research indicates that low nurse/midwife staffing levels are associated with poor patient outcomes and adverse hospital events (Table 3).[75]

Table 3: Poor patient outcomes and adverse hospital events associated with low nurse/midwife staffing levels[76]

Patient outcomes	
Urinary tract infections	Shock/cardiac failure
Pressure ulcers	Postoperative infection
Pneumonia	Pulmonary heart/lung failure
Deep vein thrombosis	Metabolic derangement
Upper gastrointestinal bleeding	Failure to rescue
Central nervous system complications	Hospital mortality rates
Sepsis	
Hospital events	
Intensive care adverse events	Falls in hospitals
Length of stay in hospital	Adverse drug events
Adverse outcomes for high risk infants	Readmission to hospitals
Emergency department waiting times	

5.2.2 The introduction of LNMPRs in Queensland

Research has been conducted on the introduction of LNMPRs in Queensland. In particular, academic Dr Matthew McHugh and colleagues conducted two studies on the use of LNMPRs in Queensland's public hospitals. The first study was conducted before the introduction of LNMPRs and the second study was conducted after the introduction of LNMPRs.

The first study sought to examine:

- whether, before the introduction of LNMPRs, there was variation in nurse staffing levels across Queensland's public hospitals; and
- the extent to which any variation in nurse staffing was associated with negative outcomes for patients and nurses.[77]

The study analysed cross-sectional survey data from 4,372 nurses and outcomes data from 146,456 patients in 68 public hospitals.[78] It found that before ratios were implemented there was considerable variation in nurse staffing across Queensland's medical-surgical wards.[79] Further, the study found that "higher nurse workloads were associated with patient mortality, low quality of care, nurse emotional exhaustion and job dissatisfaction".[80]

The first study concluded:

> Our findings in Queensland are consistent with this evidence-base … [that there is a consistent relationship between nurse staffing and good outcomes] … and suggest that taking action to improve staffing was a reasonable policy approach that could lead to improved patient safety and quality.[81]

The second study sought to examine the effect of Queensland's LNMPRs on staffing levels and patient outcomes.[82] To examine this issue, the study compared 27 hospitals that were subject to the ratios ("intervention hospitals") with 28 hospitals that were not subject to the ratios ("comparison hospitals"). The intervention hospitals were chosen by the Queensland Government to represent regions across the State. The study accounted for any differences between the intervention and comparison hospitals by statistical controls for such factors as hospital size and patient characteristics.[83]

The study analysed the data at two timepoints: the baseline before the implementation of the ratios (2016) and two years post-implementation (2018).

Survey data from 17,010 medical surgical nurses and patient data from 231,902 patients was used in the analysis. The study found:

- The introduction of LNMPRs resulted in increased staffing levels at intervention hospitals; whereas staffing at comparison hospitals remained "largely unchanged".
- Intervention hospitals had greater improvements in patient outcomes (mortality, length of stay and readmissions) than comparison hospitals.
- Due to the improved patient outcomes, the introduction of LNMPRs resulted in "significant cost savings". In particular, the costs saved because of reduced length of stay and readmissions were estimated to be "more than twice the costs of the additional staffing needed to comply with the policy".[84]

McHugh et al's study provides further evidence on the association between nurse/midwife staffing levels and patient outcomes. Moreover, while the authors noted that LNMPRs are "probably not the only policy design that could stimulate staffing improvements and improved outcomes", [85] their study showed that LNMPRs are a "…feasible instrument to improve nurse staffing, produce better patient outcomes, and yield a good return on investment". [86]

5.2.3 Comparing the relative effectiveness of the different models

Recent studies and reports have compared the relative effectiveness of the different staffing models. In general, the studies found that there is presently insufficient evidence to conclusively determine which of the models is more effective than others in increasing nurse staffing levels, improving patient outcomes and reducing staff attrition.

2019 review: A 2019 systematic review examined the effectiveness of different staffing models and various adjustments to the nurse skills mix. The study stated that it was "difficult to identify a form of best practice".[87] It found that better evidence was needed on the impact of different nurse-staffing models and skills mix adjustments on patient and staff outcomes.[88]

2020 report: A 2020 report by the Chief Nursing and Midwifery Office of Western Australia stated that, with respect to patient outcomes, "there is currently no consensus internationally, or within Australia, on the most appropriate and effective method to determine optimal staffing."[89] The report recommended that Western Australia's existing NHPPD be retained, provided "significant amendments" were made to ensure that it became "relevant, contemporary and fit-for-purpose" and was "strongly align[ed] with the principles of evidence-based safe staffing".[90]

2020 discussion paper: A 2020 discussion paper compared the different nurse/midwife staffing policies used in England, Ireland, California, Victoria and Queensland.[91] The discussion paper was based on a literature review and consultation with country experts. California, Victoria and Queensland use LNMPRs; whereas Ireland and England do not use ratios.[92] Instead, Ireland and England each use their own hybrid staffing models.[93] England's model includes a general ratio-based guideline that states more than eight patients per nurse (during the day) is unsafe.

The authors of the 2020 discussion paper noted that all studied policies achieved their shared aimed of improving bed-side nurse staffing.[94] The authors then observed:

> Moreover, the negative predictions from critics (e.g. there are not enough nurses to meet the new ratios, hospital wards will have to close) were not observed in practice. On the contrary, in California, Victoria and Ireland, an increased attraction (e.g. new nurse recruits, re-entries in the profession) as well as higher retention rates were observed after the introduction of safe staffing policies.[95]

According to the authors, their international comparison ultimately suggested:

> … there is not one best way to deal with these issues. Besides mandatory patient-to-nurse ratios, alternative policy measures exist to indirectly increase the number of [registered nurses (RNs)] at the bedside.[96]

The authors expressly stated, however, that any resulting uncertainty about the merits of the various staffing models is not a justification for inaction in developing an effective and safe staffing framework; particularly in light of the known association between staffing levels and patient outcomes, and the challenges posed by an ageing population and potential workforce shortages.[97]

2021 review: A 2021 systematic review analysed existing studies on the impact of different nurse staffing models on patient and nurse outcomes.[98] The nurse staffing models considered by the 2021 review included nurse-to-patient ratios, NHPPDs and acuity-based hybrid models. The authors of the 2021 review concluded:

> The current evidence regarding staffing methodologies cannot point to any methodology as being superior in improving patient and nurse outcomes. Rather, the review supports improvements in nurse staffing levels, which has the associated benefit of improving nurse and patient outcomes. …[99]

6. Costing of nurse-to-patient ratios in NSW

On 18 March 2019, at the request of the Labor Party, the NSW Parliamentary Budget Office (PBO) published a Policy Costing on nurse-to-patient ratios.

The PBO costing stated that introducing the proposed ratios would have a total cost of $1.3 billion over seven years, and then approximately $590 million per annum, in total, ongoing thereafter.[100]

Figure 3 sets out the figures from the PBO costing on General Government Sector Impact and related notes and costing assumptions.

The costing noted that "NSW Health advice indicates that 4,807 [Full-time Equivalent (FTE)] positions would be needed to meet the proposed ratios."[101]

Figure 3: NSW Parliamentary Budget Office costing (2019)[102]

General Government Sector Impacts

	2018-19 $'000	2019-20 $'000	2020-21 $'000	2021-22 $'000	4 year Total $'000
Expenses (ex. depreciation)	-	28,161	158,683	229,463	416,307
Depreciation	-	-	-	-	-
Less: Offsets	-	-	-	-	-
Revenue	-	-	-	-	-
Net Operating Balance:	**-**	**(28,161)**	**(158,683)**	**(229,463)**	**(416,307)**
Capital Expenditure	-	-	-	-	-
Capital Offsets	-	-	-	-	-
Net Capital Expenditure:	**-**	**-**	**-**	**-**	**-**
Net Lending/(Borrowing):	**-**	**(28,161)**	**(158,683)**	**(229,463)**	**(416,307)**

This policy proposes introducing minimum nurse-to-patient ratios for the following NSW health facilities or roles, phased-in as shown in the table below. Based on advice from NSW Health, the PBO estimates the policy to cost $416.3 million over the forward estimates, for a total cost over seven years to 2024-25 of $1.3 billion. The various initiatives would cost around $590 million per annum, in total, ongoing thereafter, although these costs would be gradually absorbed by adjustments in health growth funding.

Figure 1

Ward/role	Proposed nurse-to-patient ratios	Phase-in period
Emergency	See Table A1 in Appendix	1 July 2020 to 30 June 2024
Paediatric	1:3 + in charge for two shifts	1 July 2022 to 30 June 2025
Medical/surgical	1:4 (AM & PM) and 1:7 (night)	1 July 2020 to 30 June 2024
In-charge nurses (Peer Group A Hospitals)	One in-charge nurse with no patient load funded on two shifts	1 July 2020 to 30 June 2024
In-charge nurses (Peer Group B Hospitals)	One in-charge nurse with no patient load funded on two shifts	1 July 2020 to 30 June 2024
In-charge nurses (Peer Group C Hospitals)	One in-charge nurse with no patient load funded on one shift	1 July 2020 to 30 June 2024
Midwives	1:3 in all NSW postnatal wards	1 July 2020 to 30 June 2024
Specialling Nurses	1:4 (AM & PM) and 1:7 (night) - for all Peer Group A, B and C hospitals	From 1 July 2019 onwards
Mental health	1:4 (AM & PM) and 1:7 (night)	1 July 2022 to 30 June 2024

It should be noted that the PBO's costing does not represent the cost of implementing the LNMPRs claimed by the NSW Nurses and Midwives' Association in its Award Claim 2022 (as set out in Appendix 5). The PBO's costing only represents an estimate of the cost of implementing the specific ratios detailed in its 2019 costing document. Potential savings associated with improved hospital outcomes were not included in the PBO costing.

7. Conclusion

Nurse/midwife staffing models that result in safer patient care are fundamental to ensuring an effective health system. Such staffing models support hospitals to improve patient outcomes, improve nurse/midwife wellbeing, reduce workforce attrition, and potentially reduce costs. Several nurse/midwife staffing models exist and their respective characteristics, strengths and weakness were considered in this e-brief.

Research was presented which indicates that the introduction of LNMPRs in Queensland was associated with improved patient outcomes and cost savings for the health system. Queensland's approach of evaluating the introduction of LNMPRs and publishing data on adherence to ratios is illustrative of the evidence-based approach required to develop and implement a staffing model that is fit for purpose and meets the particular needs of any jurisdiction.

This is an issue, however, that may be amenable to more than one solution. While the introduction of LNMPRs was shown to be effective in Queensland, hybrid models are used effectively in some overseas jurisdictions. The ACT Government's discussion paper also recommended a hybrid model that takes account of acuity data.

The Health Services Amendment (Nurse-to-Patient and Midwife-to-Patient Ratios) Bill 2022 proposes the introduction of LNMPRs. The introduction of the 2022 Bill into the Legislative Council, and the associated debate regarding nurse/midwife staffing models in NSW, is addressing an issue that will have a significant impact on patients and the NSW public hospital system for many years to come.

8. Appendices

8.1 Appendix 1: Victorian nurse to patient ratios

Section	Nurse to patient ratio	Setting
15	• 1 nurse to 4 patients, and 1 nurse in charge (M or A) • 1 nurse to 8 patients, and 1 nurse in charge (N)	General medical or surgical wards in Level 1 hospitals[103]
16	• 1 nurse to 4 patients, and 1 nurse in charge (M) • 1 nurse to 5 patients, and 1 nurse in charge (A) • 1 nurse to 8 patients, and 1 nurse in charge (N)	General medical or surgical wards in Level 2 hospitals[104]
17	• 1 nurse to 5 patients, and 1 nurse in charge (M) • 1 nurse to 6 patients, and 1 nurse in charge (A) • 1 nurse to 10 patients, and 1 nurse in charge from 1.7.2023 (N)	General medical or surgical wards in Level 3 hospitals[105]
18	• 1 nurse to 6 patients, and 1 nurse in charge (M) • 1 nurse to 7 patients, and 1 nurse in charge (A) • 1 nurse to 10 patients (N)	Acute wards in Level 4 hospitals[106]
19	• 1 nurse to 7 residents, and 1 nurse in charge (M) • 1 nurse to 8 residents, and 1 nurse in charge (A) • 1 nurse to 15 residents (N)	High care beds in aged high care residential wards
20(1)	• 1 to 3 beds (including resuscitation beds), 1 nurse in charge and 1 triage nurse (M) • 1 to 3 beds (not including resuscitation beds), 1 to each resuscitation bed, 1 nurse in charge, 2 triage nurses (A) • 1 to 3 beds (not including resuscitation beds), 1 nurse for each resuscitation bed, 1 nurse in charge, 1 triage bed (N)	Emergency departments of hospitals specified in Part 1 of Schedule 3
20(3)	• 1 nurse to 3 beds, 1 nurse in charge, 1 triage nurse (all shifts)	Emergency department of hospitals specified in Part 2 of Schedule 3
20(4)	• 1 nurse to 3 beds, 1 nurse in charge, 1 triage nurse (M or A) • 1 nurse to 3 beds (N)	Emergency department of hospitals specified in Part 3 of Schedule 3
20(5)	• 1 nurse to 3 beds, 1 nurse in charge and 1 triage nurse[107] (all shifts)	Emergency department with more than 7,000 annual presentations (other than a hospital in Schedule 3)

Section	Nurse to patient ratio	Setting
20(6)	• 2 registered nurses (all shifts)[108]	Emergency department with between 5,000 and 7,000 annual presentations (other than a hospital in Schedule 3)
20(8)	• 2 registered nurses and additional nurse who is available when necessary[109] (all shifts)	Emergency department with fewer than 5,000 annual presentations
21	• 1 nurse to 2 patients and 1 nurse in charge (M or A) • 1 nurse to 3 patients (N)	Coronary care unit
21A	• 1 nurse to 3 patients and 1 nurse in charge (all shifts)	Acute stroke ward
21B	• 1 nurse to 4 patients and 1 nurse in charge (M or A) • 1 nurse to 8 patients and 1 nurse in charge (N)	Oncology ward
21C	• 1 nurse to 3 patients and 1 nurse in charge (M or A) • 1 nurse to 5 patients and 1 nurse in charge (N)	Haematology wards
22(1)[110]	• 1 nurse to 2 patients and (unless co-located with an intensive care unit) 1 nurse in charge (M or A) • 1 nurse to 2 patients (N)	High dependency unit in Level 1 hospitals
23	• 1 nurse to 4 patients and 1 nurse in charge(M) • 1 nurse to 4 patients and 1 nurse in charge (A) • 1 nurse to 6 patients and 1 nurse in charge (N)	Palliative care inpatient unit
24(1)	• 1 nurse to 5 patients and 1 nurse in charge (M or A) • 1 nurse to 10 patients (N)	Rehabilitation beds
24(2)	• 1 nurse to 5 patients and 1 nurse in charge (M) • 1 nurse to 6 patients and 1 nurse in charge (A) • 1 nurse to 10 patients and 1 nurse in charge (N)	Geriatric evaluation beds
25	• 1 instrument nurse, 1 circulating nurse and 1 anaesthetic nurse (at all times when utilised) • Ration can be increased or decreased in accordance with the criteria prescribed in clause 5 of *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Regulations 2015*	Operating theatre
26	• 1 nurse to 1 unconscious patient (all shifts)	Post-anaesthetic recovery

Section	Nurse to patient ratio	Setting
27(1)	• for 7 or fewer occupied cots: 1 nurse or midwife and 1 nurse or midwife for every 4 additional occupied cots beyond 4 (all shifts)[111] • for 8 or 9 occupied cots: 1 nurse or midwife, plus one nurse or midwife for every additional occupied cot beyond 4, and 1 nurse of midwife in charge (M, A or N) • for 10 occupied cots: 3 nurses or midwives, and 1 nurse or midwife in charge (M, A or N) • for 11 or more occupied cots: 4 nurses or midwives, plus 1 nurse or midwife for every 3 additional occupied cots beyond 11, and 1 nurse or midwife in charge (M, A or N) • Additional nurses or midwives may be provided in accordance with the prescribed criteria in clause 5A of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Regulations 2015*.	Special care nursery
28	• 1 nurse to 2 beds and 1 nurse in charge (all shifts) • Additional staff may be provided in accordance with the criteria prescribed in clause 5B of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Regulations 2015*	Neo-natal intensive care unit

Notes: M = morning shift. A = afternoon shift. N = night shift.

8.2 Appendix 2: Victorian midwife to patient ratios

Section	midwife to patient ratio	Setting
30	• 1 midwife to 4 patients, and 1 nurse or midwife in charge (M or A) • 1 midwife to 6 patients[112] (N)	Antenatal ward
31	• Level 1, 2 or 3 hospitals: 2 midwives to 3 nominated birthing suites (all shifts) • Hospital with 6 more nominated birthing suites: midwife in charge (all shifts)	Birthing suites
31A	• 1 midwife or nurse to 4 patients and 1 midwife or nurse in charge (M or A) • 1 midwife or nurse to 6 patients and 1 midwife or nurse in charge (N)	Postnatal ward

Notes: M = morning shift. A = afternoon shift. N = night shift. “Patient” does not include newborn infant.

8.3 Appendix 3: Queensland's nurse and midwife to patient ratios

clause	Nurse and midwife to patient ratio	Setting
30B(2)	• Number of patients divided by 4 (M) • Number of patients divided by 4 (A) • Number of patients divided by 7 (N)	Acute adult wards (medical, surgical, mental health) in the public health facilities listed in Schedule 2A (where a dot appears under the relevant table heading)

Notes: M = morning shift. A = afternoon shift. N = night shift.

8.4 Appendix 4: NSW NHPPDs

NHPPD	Setting
6.0 NHPPD, accounted for over one week	General inpatient wards in Peer Group A1 and A3 facilities: principal referral hospitals and ungrouped acute tertiary referral hospitals
5.5 NHPPD, accounted for over one week	General inpatient wards in Peer Group B facilities: major hospitals Group 1 and 2*
5.0 NHPPD, accounted for over one week	General inpatient wards in Peer Group C facilities: district group hospitals*
6.0 NHPPD, accounted for over one week	Dedicated palliative care wards
5.0 NHPPD accounted for over one week	Dedicated general rehabilitation wards and units**
6.0 NHPPD accounted for over one week	Dedicated rehabilitation specialist brain and spinal injury units**
6.0 NHPPD accounted for over one week	Inpatient adult acute mental health wards in general hospitals (not specialist mental health facilities)
5.5 NHPPD accounted for over one week	Inpatient adult acute mental health wards in specialised mental health facilities*

Notes: For information on the hospital groupings, see: NSW Health, *Hospital Peer Groups 2016.* * (Agreement to move to 6.0 NHPPD) ** NHPPD includes hours usually worked by nursing and other categories of staff, as agreed with the NSW Nurses and Midwives' Association and the Australian Nursing and Midwifery Federation NSW Branch

8.5 Appendix 5: NSW Nurses and Midwives Association: Award Claim 2022

Setting	Ratio
General adult inpatient wards	
Medical/surgical wards (general inpatient wards)	• 1:4 plus nurse in charge (AM) • 1:4 plus nurse in charge (PM) • 1:7 night
Critical care (Adult, paediatric and mental health)	
Intensive care unit (ICU) Paediatric intensive care unit (PICU) Mental health intensive care unit (MHICU)	• 1:1 plus nurse in charge plus access nurse (AM) • 1:1 plus nurse in charge plus access nurse (PM) • 1:1 plus nurse in charge plus access nurse (Night)
High dependency unit (HDU) Close observations	• 1:2 plus nurse in charge (AM) • 1:2 plus nurse in charge (PM) • 1:2 plus nurse in charge (Night)
Coronary care units	• 1:2 plus nurse in charge (AM) • 1:2 plus nurse in charge (PM) • 1:2 plus nurse in charge (Night)
Emergency department (adult, paediatric and mental health assessment centres)	
Resuscitation beds	• 1:1 (AM) • 1:1 (PM) • 1:1 (Night)
Level 4-6 emergency departments	• 1:3 plus nurse in charge plus triage (AM) • 1:3 plus nurse in charge plus 2 triage (PM) • 1:3 plus nurse in charge plus triage (Night)
Level 3 emergency department	• 1:3 plus nurse in charge pus triage (AM) • 1:3 plus nurse in charge plus triage (PM) • 1:3 plus nurse in charge plus triage (Night)
Level 2 emergency departments	• 1:3 plus nurse in charge (AM) • 1:3 plus nurse in charge (PM)

Setting	Ratio
	• 1:3 plus nurse in charge (Night)
Level 1 emergency departments	• No separate/dedicated registered nurses
Emergency medical units (EMUs)	• 1:3 plus nurse in charge (AM) • 1:3 plus nurse in charge (PM) • 1:4 plus nurse in charge (Night)
Medical assessment units (MAUs)	• 1:4 plus nurse in charge (AM) • 1:4 plus nurse in charge (PM) • 1:4 plus nurse in charge (Night)
Inpatient mental health	
Adult inpatient mental health – acute and subacute	• 1:3 plus nurse in charge (AM) • 1:3 plus nurse in charge (PM) • 1:5 (Night)
Child and adolescent	• 1:2 plus nurse in charge (AM) • 1:2 plus nurse in charge (PM) • 1:4 (Night)
Acute mental health rehabilitation	• 1:4 plus nurse in charge (AM) • 1:4 plus nurse in charge (PM) • 1:5 (Night)
Long-term mental health rehabilitation	• 1:6 plus nurse in charge (AM) • 1:6 plus nurse in charge (PM) • 1:10 (Night)
Older mental health	• 1:3 plus nurse in charge (AM) • 1:3 plus nurse in charge (PM) • 1:5 (Night)
MHICU/PICU	• 1:1 plus nurse 1 in charge (AM) • 1:1 plus nurse in charge (PM) • 1:1 plus nurse in charge (Night)
HDU/close observations	• 1:2 plus nurse in charge (AM) • 1:2 plus nurse in charge (PM) • 1:2 plus nurse in charge (Night)

Setting	Ratio
Paediatrics	
Paediatrics general inpatient wards	• 1:3 plus nurse in charge (AM) • 1:3 plus nurse in charge (PM) • 1:3 plus nurse in charge (Night)
Neonatal intensive care units	
ICU	• 1:1 plus nurse in charge (AM) • 1:1 plus nurse in charge (PM) • 1:1 plus nurse in charge (Night)
HDU	• 1:2 plus nurse in charge (AM) • 1:2 plus nurse in charge (PM) • 1:2 plus nurse in charge (Night)
Special care nurseries[113]	• 1:3 plus nurse in charge (AM) • 1:3 plus nurse in charge (PM) • 1:3 plus nurse in charge (Night)
Rehabilitation	
Rehabilitation	• 1:4 plus nurse in charge (AM) • 1:4 plus nurse in charge (PM) • 1:7 (Night)
Short stay wards	
High volume short stay	• 1:4 (AM) • 1:4 (PM) • 1:7 (Night)
Day only units	• 3.5 hours of face-face patient care (No ratio)
Drug and alcohol units	
Drug and alcohol inpatients (standalone units)	• 1:4 (AM) • 1:4 (PM) • 1:7 (Night)

Setting	Ratio
Drug and alcohol outpatients	• Criteria based on time (no ratio)
Palliative care	
Palliative care	• 1:4 plus nurse in charge (AM) • 1:4 plus nurse in charge (PM) • 1:7 (Night)

[1] For reports of the strike and the nurse's claims, see: Xia A et al, NSW nurses and midwives converge on Sydney's CBD in protest over pay and work conditions during COVID-19 pandemic, *ABC News*, 16 February 2002; McGowan M and Rose T, Thousands of NSW nurses to strike in defiance of Industrial Relations Commission ruling, *The Guardian*, 14 February 2022; NSW strike: health minister argues ratios would lead to idle nurses, *On the record*, 16 February 2022, Marin-Guzman D, NSW considers 'further' compensation as overworked nurses strike, *Financial Review*, 15 February 2022; and Mahe D, NSW nurses and midwives to strike next Tuesday in response to budget, *ABC News*, 23 June 2022.

[2] NSW Nurses and Midwives Association, Unwavering commitment to fight on for ratios in NSW, 23 July 2021.

[3] NSW Nurses and Midwives Association, Ratios, It's a matter of life or death: about, 2021.

[4] Hazzard B, Letter to Helen Minnican, Clerk of the Legislative Assembly, 22 December 2020.

[5] Wu D, Brad Hazzard claims nurses' demand for improved staff to patient ratios would cost NSW taxpayers $1 billion, *Sky news.com*, 15 February 2022. For the latest NSW Government expenditure figures, see: NSW Budget 2022-23, My Budget, where the money goes, 21 June 2022.

[6] On 17 August 2022, the Industrial Relations Commission rescinded the 2021 Award and replaced it with *the Public Health System Nurses' and Midwives' (State) Award 2022*: see *Application for Public Health System Nurses' and Midwives' (State) Award 2022* [2022] NSWIRComm 1066. The 2022 Award provided a pay increase of 2.53%. Most of the terms were rolled over.

[7] *Industrial Relations Act 1996*, sections 10 and 17.

[8] *Public Health System Nurses' and Midwives' (State) Award 2021*, clause 58(iv).

[9] *Public Health System Nurses' and Midwives' (State) Award 2021*, clause 53(iv).

[10] *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*, section 37.

[11] *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*, section 39.

[12] *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*, section 41.

[13] There are certain alleged breaches to which section 41 does not apply: see section 41(5).

[14] *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*, section 41. The resolution procedures are prescribed under regulation 11 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Regulations 2015.*

[15] *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*, section 42.

[16] *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*, sections 42 and 43.

[17] *Nursing and Midwifery Workload Management Standard*, 10 June 2016, clauses 2.4.2 and 2.5.

[18] See: NSW Nurses and Midwives Association, *A nurses' and midwives guide to Reasonable Workloads Committees*, 2014, p 11.

[19] *Industrial Relations Act 1996*, section 133.
[20] *Industrial Relations Act 1996*, section 136.
[21] Section 9(1)(a) and (b) of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[22] Section 12A of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[23] Section 9(1)(c) of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[24] Section 9(1)(d) of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[25] Victorian Government, *Guide to implementation of amendments to the Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015*, November 2020, p 9.
[26] Section 13(1) of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[27] Section 13(2) of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[28] Section 36 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[29] Section 32 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.
[30] The ratios were introduced on 1 July 2016. McHugh MD et al, Case for hospital nurse-to-patient ratio legislation in Queensland, Australia, hospitals: an observational study, *BMJ Open*, 2020,10, e036264, p 2.
[31] Section 138B(3) of the *Hospital and Health Boards Act 2011 (Qld)*.
[32] Clause 30B(3) of the *Hospital and Health Boards Regulation 2012 (Qld)*.
[33] Clause 30B(4) of the *Hospital and Health Boards Regulation 2012 (Qld)*.
[34] Section 30B(2) of the *Hospital and Health Boards Regulation 2012 (Qld)*.
[35] Office of the Chief Nursing and Midwifery Officer, About ratios, Queensland Government, 2022.
[36] Queensland Government, *Business Planning Framework*, 2021, p 2.
[37] Office of the Chief Nursing and Midwifery Officer, About ratios, Queensland Government, 2022.
[38] Office of the Chief Nursing and Midwifery Officer, About ratios, Queensland Government, 2022.
[39] Office of the Chief Nursing and Midwifery Officer, About ratios, Queensland Government, 2022.
[40] Clause 53 Section II(a) of the *Public Health System Nurses' and Midwives' (State) Award 2021*.
[41] Clause 53 Section II(b) of the *Public Health System Nurses' and Midwives' (State) Award 2021*.
[42] The alternative staffing arrangements include the use of professional standards (in the case of perioperative services) and tailored methodologies (for instance, maternity services, which use the birth rate plus methodology (Clause 53 Section V)). Peer Group D Community Hospitals and F3 Multipurpose Service Facilities also have tailored methodologies (Clause 53 Section III).
[43] *Public Health System Nurses' and Midwives' (State) Award 2021*, example table 1, p 70.
[44] Clause 53 Section II (l) of the *Public Health System Nurses' and Midwives' (State) Award 2021.*
[45] Clause 53 Section II (l) of the *Public Health System Nurses' and Midwives' (State) Award 2021.*
[46] Clause 53 Section II(m) of the *Public Health System Nurses' and Midwives' (State) Award 2021*. This excludes Nursing Unit Managers, Nurse Managers, Clinical Nurse Educators, Clinical Nurse Consultants, dedicated administrative support staff and wardspersons.
[47] Clause 53 Section II (4) of the *Public Health System Nurses' and Midwives' (State) Award 2021*
[48] The petition was lodged by Mr Phil Donato MP on 17 November 2020.
[49] Hazzard B, Letter to Ms Helen Minnican, Clerk of the Legislative Assembly, 22 December 2020.
[50] Hazzard B, Letter to Ms Helen Minnican, Clerk of the Legislative Assembly, 22 December 2020.
[51] NSW strike: Health Minister argues ratios would lead to idle nurses, *On the record*, 16 February 2022. See also: Wu D, Brad Hazzard claims nurses' demand for improved staff

to patient ratios would cost NSW taxpayers $1billion, *Sky News*, 15 February 2022. For the latest NSW Government expenditure figures, see: NSW Budget 2022-23, My Budget, where the money goes, 21 June 2022.

[52] NSW strike: Health Minister argues ratios would lead to idle nurses, *On the record*, 16 February 2022. See also: Wu D, Brad Hazzard claims nurses' demand for improved staff to patient ratios would cost NSW taxpayers $1billion, *Sky News*, 15 February 2022.

[53] Marin-Guzman D, NSW considers 'further' compensation as overworked nurses strike, *Financial Review*, 15 February 2022.

[54] NSW Government: *NSW secures largest health workforce boost in history*, 6 June 2022 and *NSW Government welcomes new graduate nurses and midwives to health system*, 10 February 2022.

[55] NSW Government, *NSW Government welcomes new graduate nurses and midwives to health system*, 10 February 2022.

[56] A clear pathway to ratios, *The Lamp*, 4 March 2019, p 8. See also: Holmes B, *Labor supports nurses and midwives with major ratios offer,* NSW Nurses and Midwives' Association, 25 February 2019.

[57] NSW Parliamentary Budget Office, Election Policy Costing, Policy Costing on nurse to patient ratios, 18 March 2019.

[58] Faehrmann C, *Health Care Workers*, *NSW Hansard*, 23 June 2021, p 6,021-6,025. The motion was agreed to by a majority of eight votes: p 6,025.

[59] NSW Legislative Council, Portfolio Committee No.2 (Health), *Health outcomes and access to health and hospital services in rural, regional and remote NSW*, 5 May 2022, p 279-80.

[60] NSW Legislative Council, Portfolio Committee No.2 (Health), *Health outcomes and access to health and hospital services in rural, regional and remote NSW*, 5 May 2022.

[61] Smith A, Labor sides with NSW Government to block demand for nurse ratios, *Sydney Morning Herald*, 5 May 2022. See also: Short-staffed and a 'culture of fear' in rural health, *The Lamp*, 1 June 2022.

[62] NSW Nurses and Midwives Association, *Ratios, Pay and Conditions: Award Claim 2022*, March 2022, p 4.

[63] NSW Nurses and Midwives Association, *Ratios, Pay and Conditions: Award Claim 2022*, March 2022, p 4.

[64] NSW Nurses and Midwives Association, *Ratios, Pay and Conditions: Award Claim 2022*, March 2022, p 4-5.

[65] NSW Nurses and Midwives Association, *Ratios, Pay and Conditions: Award Claim 2022*, March 2022, p 5.

[66] NSW Nurses and Midwives Association, *Ratios, Pay and Conditions: Award Claim 2022*, March 2022, p 9.

[67] NSW Nurses and Midwives Association, *Ratios, Pay and Conditions: Award Claim 2022*, March 2022, p 13, 14, 16-17 and 18.

[68] ACT Government, *Review of Nursing and Midwifery Staffing Models*, November 2021, p 6.

[69] For research on the relationship of nurse/midwife staffing levels and wellbeing, see: Shin S, Park JH and Bae SH, Nurse staffing and nurse outcomes: A systematic review and meta-analysis, *Nurse Outlook*, 2018, May-June, 66(3) 273-282; and Bae SH, Intensive care nurse staffing and nurse outcomes: A systematic review, *Nurse Crit Care,* 2021, Nov, 26(6), 457-466.

[70] ACT Government, *Review of Nursing and Midwifery Staffing Models*, November 2021, p 5-7. The use of specialist software can, for present purposes, be viewed as the application of a formula.

[71] ACT Government, *Review of Nursing and Midwifery Staffing Models*, November 2021, p 8.

[72] ACT Government, *Review of Nursing and Midwifery Staffing Models*, November 2021, p 7. One study using a simulation of a hybrid model found that "shift-by-shift measurement of patient demand can guide flexible staff deployment, but the baseline number of staff rostered must be sufficient. Higher baseline rosters are more resilient in the face of variation and appear cost-effective": Griffith P, Saville C and Ball JE et al, Beyond ratios - flexible and resilient nurse staffing options to deliver cost-effective hospital care and address staff shortages: A simulation and economic modelling study, *Int J Nurs Stud*, 2021, 117, 103901.

[73] ACT Government, *Review of Nursing and Midwifery Staffing Models*, November 2021, p 4-5 and 8. For further information on the position in New Zealand, see: New Zealand Ministry of Health, Nursing Advisory Group, *Nursing Safe Staffing Review: Report on the Review of the Care Capacity Demand Management (CCDM) Programme*, February 2022.

[74] ACT Government, *Review of Nursing and Midwifery Staffing Models*, November 2021, p 4.

[75] For instance, see: Musy SN, Endrich O, Leichtle AB et al, The association between nurse staffing and inpatient mortality: A shift-level retrospective longitudinal study, *International*

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[76] Based on the references set out in endnote 68.

[77] McHugh MD et al, Case for hospital nurse-to-patient ratio legislation in Queensland, Australia, hospitals: an observational study, *BMJ Open*, 2020, 10, e036264, p 1 and 2.

[78] McHugh MD et al, Case for hospital nurse-to-patient ratio legislation in Queensland, Australia, hospitals: an observational study, *BMJ Open*, 2020, 10, e036264, p 1, 2 and 3.

[79] McHugh MD et al, Case for hospital nurse-to-patient ratio legislation in Queensland, Australia, hospitals: an observational study, *BMJ Open*, 2020, 10, e036264, p 1 and 4.

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[81] McHugh MD et al, Case for hospital nurse-to-patient ratio legislation in Queensland, Australia, hospitals: an observational study, *BMJ Open*, 2020, 10, e036264, p 6.

[82] McHugh MD et al, "Effects of nurse-to-patient ratio legislation on nurse staffing and patient mortality, readmissions, and length of stay: a prospective study in a panel of hospitals", *The Lancet*, 22 May 2021, Volume 397, Issue 10,288, p1,905-1,913. Summary of article available online.

[83] McHugh MD et al, "Effects of nurse-to-patient ratio legislation on nurse staffing and patient mortality, readmissions, and length of stay: a prospective study in a panel of hospitals", *The Lancet*, 22 May 2021, Volume 397, Issue 10,288, p1,905-1,913 at 1907. Summary of article available online

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[85] McHugh MD et al, "Effects of nurse-to-patient ratio legislation on nurse staffing and patient mortality, readmissions, and length of stay: a prospective study in a panel of hospitals", *The Lancet*, 22 May 2021, Volume 397, Issue 10,288, p1,905-1,913 at 1,911. Summary of article available online.

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[88] Butler M, Schultz T, Halligan P et al, Hospital nurse-staffing models and patient-and staff-related outcomes, *Cochrane Library: Database of Systematic Reviews*, 2019, p 24.

[89] Chief Nursing and Midwifery Office of Western Australia, *Western Australian Nursing and Midwifery Workloads Models Project: Final Report*, August 2020, p 54 and 56.

[90] Chief Nursing and Midwifery Office of Western Australia, *Western Australian Nursing and Midwifery Workloads Models Project: Final Report*, August 2020, p 55 and 56.

[91] KV Heede, Cornelis J, Bouckaert N, Safe nurse staffing policies for hospitals in England, Ireland, California, Victoria and Queensland, *Health Policy*, 2020, 124, 1,064-1,073.

[92] KV Heede, Cornelis J, Bouckaert N, Safe nurse staffing policies for hospitals in England, Ireland, California, Victoria and Queensland, *Health Policy*, 2020, 124, 1,064-1,073 at 1,067.

[93] KV Heede, Cornelis J, Bouckaert N, Safe nurse staffing policies for hospitals in England, Ireland, California, Victoria and Queensland, *Health Policy*, 2020, 124, 1,064-1,073 at 1,067.

[94] KV Heede, Cornelis J, Bouckaert N, Safe nurse staffing policies for hospitals in England, Ireland, California, Victoria and Queensland, *Health Policy*, 2020, 124, 1,064-1,073 at 1,068.

[95] KV Heede, Cornelis J, Bouckaert N, Safe nurse staffing policies for hospitals in England, Ireland, California, Victoria and Queensland, *Health Policy*, 2020, 124, 1,064-1,073 at 1,068. Note that the pandemic has heightened the issue of workforce shortages in some countries. For instance, a recent New Zealand report states "30% of New Zealand's nurses are Internationally Qualified Nurses … and border closures have dramatically impacted on this pipeline. Nurses are also being needed for COVID-19 screening, vaccination and patient care": New Zealand Ministry of Health, Nursing Advisory Group, *Nursing Safe Staffing Review: Report on the Review of the Care Capacity Demand Management (CCDM) Programme*, February 2022, p 9.

[96] KV Heede, Cornelis J, Bouckaert N, Safe nurse staffing policies for hospitals in England, Ireland, California, Victoria and Queensland, *Health Policy*, 2020, 124, 1,064-1,073 at 1,070.

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[100] NSW Parliamentary Budget Office, Election Policy Costing, Policy Costing on nurse to patient ratios, 18 March 2019.

[101] NSW Parliamentary Budget Office, Election Policy Costing, Policy Costing on nurse to patient ratios, 18 March 2019, p 2.

[102] NSW Parliamentary Budget Office, Election Policy Costing, Policy Costing on nurse to patient ratios, 18 March 2019, p 1.

[103] Level 1 hospitals are listed in Part 1 of Schedule 1 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.

[104] Level 2 hospitals are listed in Part 1 of Schedule 1 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.

[105] Level 3 hospitals are listed in Part 1 of Schedule 1 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.

[106] Level 4 hospitals are defined in section 3 of the *Safe Patient Care (Nurse to Patient and Midwife to Patient Ratios) Act 2015 (Vic)*.

[107] Where the Emergency Department had a regularly rostered triage nurse in one or more shifts immediately before the commencement of section 20.

[108] These two nurses may be assigned to meet the ratios in other wars if they are free to return to the Emergency Department immediately when required: section 20(7).

[109] If the hospital has three or more wards, the additional nurse must be supernumerary: section 20(8)(b)(ii).

[110] Sections 22(2), 22(3) and 22(4) provide for slightly different ratios for high dependency units in specified individual hospitals.

[111] Additional ratios are provided for 8 or 9 occupied cots (section 27(1)(b)), 10 occupied cots (section 27(1)(c)) and 11 or more occupied cots (section 27(1)(d)).

[112] A midwife or nurse assigned to an antenatal ward at night may assist in a nursery other than a neonatal intensive care unit, if the hospital layout and workload permits, without the operator of the hospital being in contravention of the ratio: section 30(2).

[113] The Special Care Nurseries ratio does not apply to special care nurseries that provide Continuous Positive Airway Pressure (CPAP) services. In those cases, the HDU claim will apply instead.

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