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Impact of Staffing Levels on Safe and Effective Patient Care

The evidence has been presented under various themes and topics as relevant to the literature available. For acute settings the themes are:

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There is limited research on the impact of nursing-led interventions specifically on patient

Decreasing the workload of a nurse by one patient led to 7% fewer patients returning to hospital within a week, 30-day mortality rates decreased by 7% and patients left hospital 3% faster. Financially, it was estimated that the cost of hiring the 167 nurses needed to reduce the workload by one patient per nurse would cost 33 million Australian dollars over two years, but there would be savings of 68 million dollars (AUD) due to the reduced admissions and shorter hospital stays (McHugh et al., 2021). Based on their estimates, the authors concluded that investing in more nurses would result in significant cost savings in the long term.

The implementation of the staffing ratios within the policy offered more flexibility, rather than implementing a ratio per nurse, the policy instead mandated a minimum average staffing level at the ward level.

The evidence demonstrates the impact nursing workload has on the quality of care provided and patient outcomes, however effective staffing levels should not be determined by a fixed number or ratio. Modelling of staffing numbers needs to consider the different type of settings, the severity of patient needs and use the professional judgement of registered nurses.

Reliance on temporary staff

Increasing nurse staffing levels is beneficial to patient outcomes, and tools have been used to identify and model the required staffing level to meet patient needs. The cost effectiveness and impact on patient care of different nurse staffing scenarios was modelled using a computer simulation (Griffiths, et al., 2021).

The conclusion was that the economic simulation model of hospital units showed low baseline staff levels with high use of flexible staff are not cost-effective and do not solve nursing shortages. They found that staffing levels with higher baseline rosters led to higher costs but improved outcomes for patients, and that cost savings from lower baseline rosters arose because shifts were left understaffed. Although adverse patient outcomes from low baseline staffing reduced where more temporary staff were available, the higher baselines were more cost effective because the saving on staff costs also reduced. They concluded that **patient harm is more likely to occur with staffing plans that minimise the number of nurses rostered in advance as temporary staff may not be available at short notice** (Griffiths, et al., 2021). This study shows that staffing level plans which heavily rely on flexible deployments are not an efficient or effective use of nurses.

Evidence from the RCN's *Nursing Under Unsustainable Pressure* (2022) report show an increase in the reliance on temporary nursing staff; however, this evidence review shows that staffing levels modelled on utilising temporary staff are not cost effective or an efficient use of nurses. Workforce planning should use temporary staff members as a contingency to manage vacancies and to have nurses available when patient demand requires it.

The evidence reinforces the RCN

Skill mix

The education level, practical training, skills and experience that nursing staff hold need to be considered when determining how many staff are needed, and when setting the skill mix. Evidence has been conducted to understand how the nursing skill mix impacts on patient care. Research found that a greater percentage of registered nurses in the staffing mix resulted in patient reports of more rapid responses to their needs (and fewer delays to their care) (Dabney et al., 2015).

In the UK, research found that lower registered nurse staffing levels and higher numbers of patients per registered nurse were associated with increased risk of death during admission to hospital (Griffiths et al., 2019). The study looked at data on staffing levels of registered nurses and nursing assistants, alongside patient mortality in adult medical and surgical wards in a south of England NHS hospital.

For every day that a patient was on a ward and there were fewer than the average number of nurses for that ward, their chance of dying increased by 3%. On days where admissions per each registered nurse were 25% more than the average, patients were 5% more likely to die. Both lower and higher than average nursing assistant staffing levels were associated with increased patient mortality, with the study suggesting that there may be an 'optimal level of assistant staffing' (Griffiths et al., 2019).

Positive patient outcomes are associated with a higher nurse skill mix within the acute setting. A systematic review of 63 articles found that nursing skill mix affected 12 patient

Impact of Staffing Levels on Safe and Effective Patient Care

effective substitute for registered nurses who regularly work the inpatient hospital ward (Zaranko et al., 2022). Policy should focus on increasing the number of trained registered nurses and improving the retention of existing experienced nurses.

The success of safe staffing is reliant on having a sufficient workforce available to ensure that patients receive the nursing care they require, and workforce requirements need to be based on the population's needs for health services. Ball et al., 2019 looked to understand what difference safe staffing policies introduced after *The Francis Inquiry* made to the achievement of safe staffing in the NHS. They noted that a constrained labour market still threatens achieving safe staffing in acute hospital wards, and that one in four (24%) of trusts surveyed reported that the number of patients per registered nurse routinely exceeded 1:8 on more than 65% of shifts in the last 12 months (1:8 is the level that had been associated with increased risk of harm in National Institute for Health and Care Excellence guidelines for safe staffing). It is evident that registered nurse staffing levels and patient safety are correlated. In the short term, the solution of using support staff is beneficial but this does not offfaton(.5 (l)4.3 (a1 (ne)172.8 o (o) 1.1 (e)2.3 c1 ()TJ0 -1.13 ((t)7 (a26.7Hq ((tp2 (e)2.3 p5

The study found that **for every additional patient per nurse, subsequently increasing**

Positive workforce environments

Alongside sufficient numbers, the evidence highlights the necessity of a positive working environment. Recent studies show that this has positive effects on both patient experience and staff wellbeing (Griffiths et al., 2018). Patient experience is generally better and more positive when staff feel part of a good team with support from colleagues, are satisfied with their jobs, experience a positive organisational climate and have low emotional exhaustion (Maben et al., 2012).

Research of medical-surgical units in US hospitals found that patients being cared for in hospitals with better work environments for registered nurses (for example, having greater autonomy and control over their resources and practice, having excellent working relationships with colleagues), were 16% more likely to survive after an in-hospital cardiac arrest (IHCA) than those cared for in hospitals with poor work environments. Further, each additional patient per nurse was associated with a 5% lower likelihood of surviving IHCA to discharge (McHugh et al., 2016).

The evidence supports the RCN *Nursing Workforce Standards* that nursing staff should receive appropriate support and be treated with dignity and respect within their workplace and feel comfortable to be able to raise concerns which will be addressed. The evidence demonstrates that patient experience is better in workforce environments where nursing staff are supported, satisfied in their job, have autonomy and positive working relationships with their colleagues.

Wellbeing

Maslach (2003) found that nurse to patient ratios and registered nurse burnout (a key component of which is emotional exhaustion that can lead to emotional and cognitive detachment from work), were associated with health care associated infections, for example, urinary tract and surgical site infections in patients. The study hypothesized that the increase in infections were due to a failure in control procedures and hygiene practices in response to nurse burnout attributed to an increase in nurse workload. Further, when registered nurse burnout was reduced, there were fewer infections (Cimiotti et al., 2012).

Primary care and community settings

Existing evidence is limited within these care settings. Most of the research has taken place in acute hospital settings, and it was recognised in the RCN's *Staffing for Safe and Effective Care (2019)* report that further research is needed in other settings.

Staffing levels and skill mix

A study from the USA looked at the impact nurse staffing and skill mix have on rehospitalisation and emergency department visits in nursing care home residents (Yang et al., 2021). They found that higher staffing levels are protective factors, especially with increased registered nurse staffing as they increase the capacity of nursing homes to care for clinically complex residents. **The study found that nursing homes with high levels of registered nurses had the lowest rehospitalisation and emergency department visit rates**, whereas residents in nursing homes with high numbers of licensed practical nurses (LPNs, who are qualified to provide basic nursing care to patients and fulfil nursing tasks such as documentation, medication administration and assisting registered nurses) were most likely to have to return to hospital or visit the emergency department.

Nursing homes with high levels of LPNs tended to have proportionally fewer hours of care provided by certified nursing assistants (CNAs, who under the supervision of licensed nursing staff, provide direct care to patients such as eating and bathing) and registered nurses (Yang et al., 2021). The authors concluded that several factors could explain the differences in outcomes associated with staffing strategies, which included a poor fit between the residents' needs and scope of practice. This study provides evidence that

A study of district nursing teams in Scotland found that direct involvement of registered nurses in patient visits enhanced patient safety (McIntosh et al., 2000). Following their scoping review, a systematic review examined evidence specifically on missed care in primary and community care settings (including nursing homes) (Sworn and Booth, 2019).

The most common type of missed care identified in the systematic review related to optimising health outcomes, ongoing health monitoring and relational care, with evidence suggesting that these were caused by patient acuity, complexity of cases, volume of work and organisational factors. There were also findings that suggest that groups (older people, people with complex conditions, and people with mental health challenges) experience the most severe impacts from missed care (such as care follow up activity, availability of regdcho21.7 (a)14 (i)6.8 (ca)nclulow up ac-8.7 (y o)17.9 (15..4 (e)2.2 (n (152 (m)2.2 (o ca)9.o)2

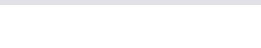
Conclusions

The nursing workforce is integral to our health care system and the UK Government needs to be willing to invest in the nursing workforce to ensure that the health and care workforce can grow and sustain the supply of nurses needed. It is important for the UK to learn from other countries where safe staffing policies have been implemented and the evidence suggests improvements to patient outcomes in relation to workforce staffing levels.

The evidence from other countries shows that having minimum nurse to patient ratio policies help improve nurse staffing levels and improve patient outcomes. However, these policies need to be flexible in their approach and the evidence demonstrates that minimum staffing average levels at a ward or setting level are easier to implement, and evidence good outcomes for both patients and employers.

As concluded in our 2019 *Staffing for Safe and Effective Care* report, the concept of patient safety is not only defined as error and neglect, but also encompasses missed care and care left undone. However, there is a lack of evidence using intervention studies in relation to skill mix interventions and safety being the principal outcome (Sworn and Booth, 2019). This is an important finding for the research community to note. We have a growing understanding of the impact of nursing staff shortages, but little evidence on how this can most effectively be managed.

In reality, workforce planning relies on a supply of temporary staff being available to cope



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