

Uncovering the disconnect between nursing workforce policy intentions, implementation, and outcomes: Lessons learned from the addition of a nursing assistant role.

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Abstract

The use of nursing assistants has increased across health systems in the last 20 years, to alleviate licensed nurses' workload and to meet rising health care demands at lower costs. Evidence suggests that, when used as a substitute for licensed nurses, assistants are associated with poorer patient and nurse outcomes. Our multi-methods study evaluated the impact of a policy to add nursing assistants to existing nurse staffing in Western Australia's public hospitals, on a range of outcomes. In this paper we draw the meta-inferences from previously published quantitative data and unpublished qualitative interview data. A longitudinal analysis of patient records found significantly higher rates adverse patient outcomes on wards that introduced nursing assistants compared to wards that did not. These findings are explained with ward-level data that show nursing assistants were added to wards with pre-existing workload and staffing problems, and that those problems persisted despite that additional resources. There were also problems integrating assistants into the nursing team, due to ad hoc role assignments and variability in assistants' knowledge and skills. The disconnect between policy intention and outcomes reflects a top-down approach to role implementation where assistants were presented as a solution to nurses' workload problems, without an understanding of the causes of those problems. We conclude that policymakers and managers must better understand individual care environments to ensure any new roles are properly tailored to patient and staff needs. Further, standardized training and accreditation for nursing assistant roles would reduce the supervisory burden on licensed nurses.

The challenge of sustaining a nursing workforce able to meet the demands of an aging and increasingly multi-morbid patient population is common to health systems across high-income countries. Thus far, governments' responses to this challenge have not addressed current and projected nursing shortages in terms of funding, workforce planning or service reforms (Buchan, Twigg, Dussault, Duffield, & Stone, 2015). These pressures have manifested in high workloads for the current generation of nurses, in turn increasing staff turnover and exacerbating the labor supply problem (Needleman, 2017). One strategy to alleviate licensed nurses' [registered nurses (RNs) and enrolled nurses (ENs)] workload while meeting rising health care demand and controlling costs is to increase the use of nursing assistants (Kroezen, Schäfer, Sermeus, Hansen, & Batenburg, 2018; Needleman, 2017). Nursing assistants go by many job titles, including assistants in nursing, health care assistants, patient care assistants, and unlicensed assistive personnel. However titled, nursing assistants have always been part of the health care workforce but their use has expanded in the past twenty years in terms of their numbers, where they work, and the range of tasks they undertake (Duffield et al., 2014).

While widespread, the expansion of assistant roles in the provision of nursing care remains problematic. A well-established body of quantitative studies across many health systems demonstrate that when nursing assistants are implemented as a substitute for licensed nurses, the resultant dilution of skill mix is associated with poorer patient and nurse outcomes (Aiken et al., 2016; Twigg, Myers, Duffield, Giles, & Evans, 2015). Meanwhile, qualitative studies have highlighted that the implementation of nursing assistant roles often lacks a clear strategy, resulting in variable roles and a high degree of uncertainty in how assistants fit into the nursing team (Clark & Thompson, 2015; Kessler, Heron, & Dopson, 2013; Spilsbury et al., 2011).

In this paper we draw the meta-inferences from three previously published quantitative strands of a large multi-methods study (Duffield et al., 2018; Roche, Friedman, Duffield, Twigg, & Cook, 2017; Twigg et al., 2016) and unpublished qualitative interview data, to provide unique insights into the introduction of nursing assistants in Western Australia's public hospitals. The health department's policy was to alleviate licensed nurses' workload by *adding* nursing assistants to the existing complement of nursing staff, rather than the more usual *substitution* of licensed nurses. By measuring the impact of this policy on a range of outcomes we illuminate the wider lessons for policymakers and hospital managers regarding the need for a more strategic approach to the implementation of new health care roles. Specifically, we call for workforce strategies that incorporate a fuller understanding of individual care environments.

Background

The rationale for implementing nursing assistants, whether in addition to or as substitutes for licensed nurses, is to meet increased demand for health care services at a lower cost and/or to alleviate nursing workloads. In many health systems, including Australia, assistants work for lower wages than licensed nurses; their training is shorter and does not have to meet national standards (Duffield et al., 2014; Kroezen et al., 2018).

Commensurate with less training and lower pay, assistants are only expected to undertake routine tasks that do not involve clinical decision making (Wakefield et al., 2009). However, there is no clear delineation between *routine* tasks suitable for assistants and the more advanced technical and decision-making tasks which should remain with licensed nurses.

In Australia, despite the inherent risks in delivering patient care, which role may perform which nursing tasks is not directly regulated, except for those related to medication administration. In the past, nursing assistants were confined to housekeeping duties but since the 1990s assistant roles have expanded to include direct patient care, attending to patients' hygiene needs and simple technical tasks such as basic wound care and taking vital signs. In the United Kingdom's National Health Service, the use of assistants increased from the mid-2000s to overcome chronic nursing shortages, and the role now includes more complex technical tasks such as performing venipuncture and electrocardiograms (Duffield et al., 2014; Kessler et al., 2013).

The risks of assistants performing direct patient care tasks are two-fold. Firstly, there is a risk of error if the assistant does not possess the appropriate skills to complete the task safely. Secondly, there is a risk of omission where tasks are not completed or there is a failure to detect deterioration in a patient's condition. When an assistant instead of a nurse undertakes time consuming, less complex direct care tasks, the opportunity for a more skilled nurse to detect subtle changes in a patient's condition is reduced (Twigg, Duffield, Thompson, & Rapley, 2010). Assistants have an obligation to report any changes in a patient's condition to a licensed nurse but this relies on assistants' knowledge and experience of what to report, and this can be variable (Bittner & Gravlin, 2009; Potter, Deshields, & Kuhrik, 2010).

Across health systems, the risk of errors and omissions is managed by emphasizing that assistants always work under the supervision of licensed nurses (Hasson, McKenna, & Keeney, 2013; Potter et al., 2010). Regulators and professional nursing bodies are consistent in their guidance to licensed nurses that they remain

accountable for overall patient care. Assistants must have tasks delegated from a licensed nurse who is then responsible for the supervision and monitoring of assistants' work (National Council of State Boards of Nursing, 2016; Nursing and Midwifery Board of Australia, 2013)

In the United States, this model of accountability is articulated to licensed nurses as the "five rights" of delegation: the *right task* must be performed under the *right circumstances* by the *right person* with the *right direction* and *right supervision* (National Council of State Boards of Nursing, 2016). Similar guidelines are found in other countries, including the *Scope of Nursing Practice Decision Making Framework* issued by the Australian nursing regulator (Nursing and Midwifery Board of Australia, 2013). In Australia, the nursing industrial body asserts that if licensed nurses are to be held accountable for safe nursing care, employers must ensure that the skills and competency of assistants is adequate for the types of tasks required in the context of the care environment (Australian Nursing & Midwifery Federation, 2015). In reality, the non-standardized training for assistants means their skills and competencies vary enormously (Hasson et al., 2013; Potter & Grant, 2004).

A further problem is that current guidelines assume that licensed nurses always actively delegate to assistants on a task-by-task basis, but many assistants are not allocated their tasks in this way. Some assistants are assigned a specific role such as hourly *rounding* (i.e., where patients' needs and requests can be regularly addressed) or the *specialling* of patients (i.e., the one-to-one or close observation of patients deemed high risk, often for behavioral reasons) (Dick, La Grow, & Boddy, 2009; Shepard, 2013). Alternatively, assistants may be assigned certain tasks, such as mouth care or assisting with meals that become an ongoing part of their role. Job designs based on specific role or task assignments have the benefit of greater role clarity. However, the implementation of such roles often fail to clarify who will supervise assistants' work in the absence of active task delegation, creating uncertainty in accountability for patient care (Potter et al., 2010; Wakefield et al., 2009).

The unlicensed, non-standard nature of assistant roles is part of their appeal since, in theory, it allows local managers to design and implement roles strategically to suit the needs of a specific workplace and its patients (Clark & Thompson, 2015; Wise, Duffield, Fry, & Roche, 2017). In practice, the implementation of assistant roles has been *ad hoc* rather than strategic and tensions around accountability and how assistants are integrated into the nursing team remain unresolved (Kessler et al., 2013; Spilsbury et al., 2011). We explored these issues when nursing assistants were introduced into Western Australia's (WA) public hospitals.

The Policy Context

Australia has a universal system of health care delivered by a complex mix of tax-funded public providers, and private providers funded through both taxation and non-compulsory insurance. Australia's acute care public hospitals are operated by state governments, such as the WA government in this study, and account for 60% of episodes of admitted patient care. Complex and emergency patients are predominantly treated in public hospitals: 92% of emergency admissions are to public hospitals, while 67% of elective surgeries are performed in private hospitals (Australian Institute of Health and Welfare, 2018).

Licensed nurses (RNs and ENs) and other health professionals are registered to practice across Australia by the national Australian Health Practitioner Regulation Agency. Registered nurses hold a three-year undergraduate degree while ENs, work under the supervision of an RN, and hold an 18-month diploma of nursing from an accredited vocational education organisation. In contrast, nursing assistants are not registered, and undertake non-standardized training (known as Certificate III) of three to six months duration provided by an employer, or a third-party training organisation.

Although nursing assistants have always been employed in Australian residential aged care facilities, they are not widely used in acute hospitals. During a severe staff shortage in 2008, the WA health department implemented a policy to *add* nursing assistants to the existing complement of licensed nursing staff in public hospitals. Minimum nurse staffing levels (RN and EN) in WA public hospitals are determined by a Nursing Hours per Patient Day (NHpPD) model introduced in 2002, and protected by industrial agreement. Each ward is assigned an NHpPD category (A–D) dependent on the complexity and diversity of patients, patient turnover and transfers from ICU or the ED and the nursing tasks required to care for them.

Adding nursing assistants to WA's public hospital wards was intended to alleviate licensed nurses' workloads, and in turn improve outcomes, though the government did not specify outcome measures. The intention was to redistribute less complex patient care and housekeeping duties to assistants, freeing up licensed nurses to perform more complex technical tasks and those requiring clinical judgement. The policy also intended to improve patient satisfaction by increasing the availability of nursing staff (licensed and/or assistants) at the bedside.

At the time of the research, the guidelines on the introduction of nursing assistants provided to hospitals comprised a list of the tasks an assistant could undertake, such as assisting with patient meals, mobility, hygiene, simple wound care and housekeeping duties. The guidelines also stipulated that the assistant must have completed Certificate III and emphasized the task-by-task delegation model of accountability that, "All tasks undertaken by [nursing assistants] will be allocated by an RN who has made an assessment of the patient and delegated the task under the Scope of Nursing Practice Decision Making Framework" (Department of Health Western Australia, 2013, p. 1). Decisions as to where assistants would be added to staffing, and how they were to be integrated into the nursing team was left to managers at the hospital and ward level.

Study Design and Methods

Aim

The aim of the study was to examine the impact on a range of outcomes of adding nursing assistants to ward staffing in Western Australia's public hospitals.

Framework

Our selection of variables and associations was guided by the Patient Care Delivery Model (PCDM) developed by O'Brien-Pallas, Meyer, Hayes, and Wang (2011). The PCDM posits that input factors (e.g., ward instability and staffing characteristics) interact with throughput factors (e.g., the practice environment), giving rise to three types of outcomes: *patient outcomes* (e.g., mortality and morbidity); *nurse outcomes* (e.g., job satisfaction and absenteeism); and *systems outcomes* (e.g., tasks delayed or not completed).

Study Design

We employed a multi-methods study design combining quantitative and qualitative methods for a richer understanding of this complex, multidimensional phenomenon (Andrew & Halcomb, 2011; Creswell & Plano Clark, 2017). We incorporated longitudinal and cross-sectional approaches to capture outcomes pre and post policy implementation. In the longitudinal component, we analyzed the records of all patients admitted to public hospitals in the two years prior to nursing assistants being introduced, and the two years after. Assistants were not introduced into every ward therefore we compared wards that did add assistants to their nurse staffing with those which did not. In the cross-sectional component, we collected ward-level quantitative data (patient survey, nurse survey and work sampling) in a sample of ten matched wards: five wards where assistants had been added to staffing, and five where they had not. We also conducted qualitative interviews with licensed nurses in the wards where assistants were added. The study design is summarized in Figure 1 and is published elsewhere in greater detail (Duffield, Roche, Twigg, Williams, & Clarke, 2016). "NA wards" refers to wards where nursing assistants were added to nurse staffing and "non-NA wards" refers to wards where they had not.

Figure 1 here.

Analysis of Patient Records

The team conducted a longitudinal interrupted time-series analysis on patient records from eleven acute care public hospitals to determine the impact of introducing nursing assistants on nursing-sensitive patient outcomes: failure to rescue (death in patients with complications), 30-day mortality (death in hospital within 30 days of admission), falls with injury, and hospital-acquired urinary tract infection (UTI), pressure injury, pneumonia, or sepsis (Twigg et al., 2016). We selected these outcomes based on a comprehensive literature review and indicator testing process (Twigg et al., 2015). We used hospital patient records and payroll data to identify whether the patient spent time on a ward that employed nursing assistants. There were 125,762 patient records in pre-test period (2006-2007) and 130,540 in the post-test period (2009-2010).

Patient Survey

A cross-sectional patient survey captured self-reported patient outcomes using the 'Patient Evaluation of Emotional Care during Hospitalization' instrument. This instrument measures patients' perceptions of, and satisfaction with their interpersonal interactions with nursing staff (Williams & Kristjanson, 2009). We

obtained a convenience sample of 141 patients (71 patients in wards with nursing assistants, 70 in wards without) (Duffield et al., 2018).

Nurse Survey

A convenience sample of 154 licensed and assistant nurses working in the ten matched wards (96 from wards with nursing assistants and 58 from wards without) completed the nurse survey, a response rate of 35.4% (Duffield et al., 2018). The questionnaire included demographic characteristics (e.g., age, sex, education, years of experience in nursing and on the ward), nurse outcomes (job satisfaction, absenteeism, intention to stay in current position, and experience of assault and abuse in the workplace), and systems outcomes (tasks delayed or not completed, and perceptions of quality of care). The survey also contained the *Practice Environment Scale* (Lake, 2002) to measure nurses' perceptions of factors in their work environment associated with nurse and patient outcomes.

Work Sampling Study

We undertook an observational work sampling study to measure how tasks were distributed between nursing staff after the introduction of assistants (Roche, Friedman, Duffield, Twigg, & Cook, 2017). We define task distribution as a systems outcome of the policy. A team of trained researchers recorded the tasks nurses performed within a specified timeframe in a work sampling framework that consisted 25 tasks categories aggregated into four top-level categories: direct care (ten items), indirect care (eight items), unit-related items (six items) and personal tasks (one item) (Pelletier, Duffield, Gietzelt, Larkin, & Franks, 2002). We recorded a total of 81,594 tasks from 452 nurses split between five wards where nursing assistants had been added (56.6% of tasks observed) and five wards where they had not (43.4% of tasks observed). Data are presented as the proportion of time nurses spent on those tasks.

Nurse Interviews

In the final stage of the study we conducted semi-structured interviews to gain a deeper understanding and explanation of the quantitative findings through the perspectives of those with experience of the phenomenon (Brannen & Halcomb, 2009). We interviewed licensed nurses about their experiences of working with nursing assistants, the impact on their workload, perceptions of role responsibilities, tasks completed and quality of care. We conducted 16 interviews with RNs and two with senior ENs and transcribed the data verbatim from digital recordings. We analyzed interview data using content analysis and constant comparative techniques (Glaser & Strauss, 1999). One author (AW) led the analysis with three members of the research team (CD, MR, DT) reviewing and interpreting the emerging themes. These data have not previously been published and are included here to expand and explain the quantitative findings. Illustrative quotes are provided where appropriate.

Ethics

The Human Research Ethics Committees at the Western Australia Department of Health, Edith Cowan University, and the University of Technology Sydney granted approval to conduct the study. The researchers obtained informed consent from all participants prior to their participation in the study. We aggregated and de-identified all data to prevent the identification of hospitals, units and individuals.

Meta-inferences

The results we present in this paper are the meta-inferences drawn from the data of each of the study's strands. We triangulate previously published quantitative data with the unpublished qualitative interview data using the narrative weaving approach described by Fetters, Curry & Creswell (2013), merging the quantitative and qualitative findings and discussing them together.

Results

The key results from each of the previously published study strands are summarized in Table 1. Overall, the longitudinal analysis of patient records revealed that the introduction of nursing assistants did not improve patient outcomes as the policy intended (Twigg et al., 2016). Indeed, we found significantly higher rates of observed to expected failure to rescue, urinary tract infections and falls with injury on wards that introduced nursing assistants. Moreover, spending time on a ward with nursing assistants increased the odds of a patient acquiring a urinary tract infection and pneumonia, compared to spending time on a non-NA ward. When we triangulated the cross-sectional quantitative and qualitative interview data, we identified three factors in the role implementation process that help explain these adverse patient outcomes: a) an incomplete redistribution of tasks from licenced to assistant nurses; b) heavy workloads and challenging patients on wards that introduced nursing assistants; and c) problems integrating assistants into the nursing team.

Incomplete Redistribution of Tasks

In the work sampling study we found that the policy's intention to redistribute less complex patient care and housekeeping tasks from licensed nurses to assistants was only partially achieved (Roche et al., 2017). Nursing assistants spent the majority of their time on the patient care and housekeeping tasks appropriate to their role. Licensed nurses on NA wards spent less time undertaking housekeeping tasks compared to licensed nurses on non-NA wards. However, the redistribution of housekeeping tasks to assistants did not result in licensed nurses spending *more* time performing complex clinical tasks. Indeed, a concern discussed by interviewees was that responsibility for complex clinical tasks had become blurred, with some RNs overly reliant on assistants to perform aspects of their work. This perception was borne out in the work sampling data where we observed that assistants occasionally performed complex tasks outside their scope of practice, such as medication preparation and administration (Roche et al., 2017).

Overall, nursing assistants *and* licensed nurses on NA wards spent a higher proportion of their time performing less complex direct care tasks of hygiene, mobility and nutrition compared to licensed nurses on non-NA wards. Consequently, direct care at the bedside comprised a high proportion of care provided on NA

wards but, contrary to expectations, this did not translate into higher levels of patient satisfaction. In the patient survey, we found no significant difference between NA and non-NA wards in the patients' perceptions of the quality of emotional care provided by the nurses on the ward (Duffield et al., 2018).

Heavy Workloads and Challenging Patients

Interviewees from NA wards consistently reported heavy workloads on their wards, including a high number of challenging patients in their care. This perception was borne out by the nurse survey results: significantly more nurses on NA wards than on non-NA wards reported they had recently experienced physical assault, threat of assault or emotional abuse, most often from patients (Duffield et al., 2018). There was considerable evidence across the interviews that licensed nurses valued assistants for helping to alleviate workloads on their ward, especially for physically demanding tasks and challenging patients. Nurse 11 commented that, "...it's that real physical work that we do where we need them the most ... it makes or breaks a shift." Similarly, Nurse 7 remarked, "It just makes such a difference... you'd be lost without [assistants], they're worth their weight in gold." On shifts where there was insufficient assistant support, heavy tasks could be delayed or not completed, as Nurse 1 explains, "... bedridden patients, they are not getting their two hourly pressure area care at the moment [because there is no assistant]." Despite these perceptions of alleviated workloads, in the nurse survey, nurses on NA wards and non-NA wards reported a similar number of tasks were delayed or not completed on their last shift.

Given the qualitative reports of heavy workloads and challenging patients, it is unsurprising that nurses on NA wards rated the "Staffing and Resource Adequacy" on their ward significantly lower than did nurses on non-NA wards (Duffield et al., 2018). These perceptions were confirmed by longitudinal administrative ward data that show nursing assistants were added to wards that had a lower skill mix (percent nursing hours provided by RNs) than wards where nursing assistants were not added (Twigg et al., 2016).

Problems integrating assistants into the nursing team.

Through the interviews we found evidence of problems with how assistants were integrated into the ward nursing team in terms of variability in role assignments, and in licensed nurses' ability to effectively delegate and supervise assistants' work. Three types of role assignments were evident in the interview data: a) a *floating* role where the assistant were delegated tasks from a licensed nurse for any patient on the ward; b) a *specialling* role where the assistant was assigned a patient requiring one-to-one supervision and; c) a *patient allocation* role where the assistant was allocated a specific group of patients. Interviewees reported that the type of role an assistant was assigned was largely determined on an *ad hoc* basis by the nurse coordinator for the shift. Some interviewees were concerned that this meant assistants were not used appropriately leaving them stressed and exhausted, for example in *specialling* for challenging patients too often, or given too much heavy work. At other times, nurses perceived that assistants were under-utilized, especially when assigned a *floating* role. Confirming perceptions of underutilization, we found that assistants spent a higher proportion of their working time engaged in 'personal time' compared to the licensed nurses on NA wards (Roche et al., 2017).

The licensed nurses interviewed also reported they had to continuously adjust their approach to delegation and supervision according to the wide variation in individual assistants' skills. Licensed nurses valued assistants that worked permanently on their ward since their skills were known and the assistants were familiar with the ward, its patients and routines. In contrast, the skills of agency (labor hire) assistants were reported to be highly variable, and they did not possess the ward-specific knowledge to work effectively in the team. As Nurse 1 explained, "... [assistants that] are permanent know the patients, they know the area they are working in, they know the routine... agency staff go everywhere, they don't know." Consequently, there was a perception that some assistants required high levels of supervision that increased, rather than alleviated licensed nurses' workload. Nurse 11 remarked, "...you feel like you spend more time looking after them than you actually need them for."

Discussion

Considered together, the quantitative and qualitative data in our study reveal that the addition of nursing assistants to ward staffing did alleviate licenced nurses' workload in some situations, as the policy intended. However, it was clear across the study's data that nursing assistants were added to wards with pre-existing workload and staffing problems, and that those problems persisted despite the additional resources. There were also problems with the integration of assistants into the nursing team, evidenced by *ad hoc* role assignments, and the incomplete redistribution of tasks to assistants. As a result, the addition of assistants to existing nurse staffing did not translate into improved patient, nurse and systems outcomes as the policy intended.

This disconnect between policy intention and outcomes reflects an implementation process without a clear strategy (Kessler et al., 2013; Spilsbury et al., 2011). In common with the implementation of an assistant role into English hospitals evaluated by Spilsbury et al. (2011), assistants were presented as a solution to nurses' workload problems in Western Australia without a ward level analysis of the causes of those problems. A thorough evaluation of workload, staffing and patients' needs on the wards prior to their introduction may have concluded that a different solution was required. For example, introducing assistants into wards that already had a low proportion of nursing hours provided by RNs simply diluted the skill mix further. Functionally this had a substitutive rather than an additive effect on staffing which, in part, explains why the rates of adverse patient outcomes increased on those wards (Aiken et al., 2016; Twigg et al., 2015).

At the ward level, the absence of clear design and implementation guidelines meant assistant roles were defined on-the-job (Kessler et al., 2013; Spilsbury et al., 2011). Consequently, the 'five rights' of effective delegation for safe and accountable care (National Council of State Boards of Nursing, 2016; Nursing and Midwifery Board of Australia, 2013) were not consistently applied.

That licensed nurses continued to perform less complex direct care tasks, and assistants occasionally performed complex tasks outside their scope of practice indicates that the *right tasks* were not always delegated in the *right circumstances* to the *right person*. The lack of clarity in role responsibilities within each ward setting is a major contributor to the inappropriate distribution of tasks between different levels of

nursing staff (Clark & Thompson, 2015; Wakefield et al., 2009), such as that observed in our study. Poor role clarity was compounded by variability in assistants' knowledge and skills, especially those of temporary staff. Established relationships between individual licensed nurses and assistants produces better delegation outcomes due to their knowledge of each other's roles, skills and the care environment (Corazzini et al., 2010; Mueller & Vogelsmeier, 2013).

Lack of role clarity, *ad hoc* role assignments and variability in assistants' knowledge and skills also affected licensed nurses' ability to provide the right direction and right supervision. This was a particular problem in the floating role where the responsibilities and supervision arrangements were unclear, and in the specialising role where there was limited or no active task delegation from a licensed nurse (Gravlin & Bittner, 2010). Moreover, the ideal model of delegation (providing assistants with the right direction and right supervision to safely complete the task then evaluating the outcomes) can be quite onerous (Bittner & Gravlin, 2009; Hasson et al., 2013), especially in the context of high workloads such as those found in our study. Evidence of the over, under and inappropriate utilization of assistants, and reports of assistants adding to rather than alleviating nurses' workloads highlights a fundamental problem with employers and regulators relying a model of task-by-task delegation to safeguard quality and safety.

Limitations

The specific limitations for each of the study's methods are detailed in the previously published papers (Duffield et al., 2018; Roche et al., 2017; Twigg et al., 2016). For the qualitative data, the addition of interviews with nursing assistants would have provided valuable insight into the how they were integrated into the nursing team. In terms of the overall study design, the opportunistic timing of the study meant it was not possible to obtain robust baseline data for the cross-sectional component of the study, for example staffing, skill mix and practice environment measures for the ten matched wards before the introduction of nursing assistants.

Implications

Implications for Policy.

The failure to improve outcomes through the addition of a new assistant role in WA has several policy implications. As Wakefield et al. (2009) argue, the introduction of new roles into health care teams is not simply a matter of enacting a policy, but is a complex process of interpretation, compromise and negotiation between stakeholders at every level of the organization that varies between each care environment. Despite this, the needs of each care environment are often not sufficiently understood before a new role is introduced, how the new role will be integrated into the existing team is rarely fully considered, and the desired outcomes insufficiently specified (Bohmer & Imison, 2013; Ricketts & Fraher, 2013; Wise et al., 2017).

A key lesson from the WA experience is that policymakers and hospital managers should better understand the complex workload dynamics of each care environment, particularly at the individual ward or unit level, rather than imposing top-down solutions to workload problems (Douglas, 2010; Duffield, Roche, Dimitrelis,

Homer, & Buchan, 2015). In some cases, the solution to workload problems might not be to add more staffing, but to resolve other problems in the care environment, such as case mix on the ward, patterns of patient volume, physical resources or workplace culture (Douglas, 2010; Duffield, Roche, Dimitrelis, Homer, & Buchan, 2015). If a new role is deemed necessary then it should be properly tailored to the staffing and patient needs of a particular care setting (Nancarrow, Roots, Grace, Moran, & Vanniekerk-Lyons, 2013), rather than the *ad hoc*, on-the-job approach to role implementation that currently prevails.

Nursing regulators, professional bodies and employers should also consider whether holding licensed nurses' accountable for assistants' work through the delegation process can effectively safeguard quality and safety when so many assistant role assignments lack active task delegation. Furthermore, current guidelines for licensed nurses on ideal delegation practice are so onerous that the level of communication and supervision required can increase, rather than alleviate their workload, especially when assistants' knowledge and skills are highly variable. Regulators and policy makers should therefore explore alternatives to the non-standardized, deregulated approach to the training and accreditation of assistants that dominates in the English-speaking world, since this is not the norm in other countries (Duffield et al., 2014; Kroezen et al., 2018). The lack of standardized training and accreditation for nursing assistants may save costs in the short term, but safety and efficiency are compromised when RNs cannot be confident to whom they can delegate tasks.

Implications for Practice.

The key implication for practice of WA's experience is that managers at the hospital and ward level should give more careful consideration to how assistants are integrated into the nursing team in terms of role clarity, and supervision arrangements.

Role clarity for assistants cannot be achieved by simply providing a list of permitted (or banned) tasks. Instead there must be clarity about how patient care and other tasks are divided between licensed and assistant roles within each care setting. Equally, greater transparency in the supervision of assistants' work is needed, especially in the absence of active task delegation from a licensed nurse. Managers should also recognize the importance of individual working relationships for good delegation practice and minimize the use of temporary staff.

Implications for Research.

This research has built on previous work that has identified the challenges involved in incorporating nursing assistants in nursing wards. Findings here encourage a more detailed exploration of the tasks undertaken by nursing assistants, of how accountability is viewed and managed, and particularly the nature of delegation by licensed nurses. Future research should also learn from one of the limitations of this study and include the views of nursing assistants. In terms of design, notwithstanding the impact of rapidly changing government policies, future studies should seek to maintain a high degree of control over implementation, to more

effectively isolate the factors under study. More comprehensive pre- and post-implementation measures of the factors that affect the outcomes of the implementation of new roles at the ward level are also important.

Conclusion

By combining insights from multiple quantitative and qualitative data sources, we found that the addition of nursing assistants to existing nurse staffing in WA's public hospitals did not improve outcomes nor alleviate nurses' workload as the policy intended. These findings highlight an urgent need to improve the effectiveness of role implementation by moving from top-down, ad hoc approach that currently prevails to one that incorporates workload and staffing challenges, patients' needs, and specifies how the role should be integrated into the team in each care environment.

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TABLE 1 SUMMARY OF PATIENT, NURSE AND SYSTEMS OUTCOMES

Data Source	Key Findings
Patient	
Outcomes	
Analysis of Patient Records ¹	<ul style="list-style-type: none"> • NA wards showed significant increases in three observed to expected adverse outcomes (failure to rescue, urinary tract infections, falls with injury). • Non-NA wards show one significant increase in observed to expected outcome (falls with injury) and one decrease (pneumonia). • Spending time on an NA ward was a significant predictor for urinary tract infection and pneumonia. • Wards that had implemented NAs already had a low skill mix (% of nursing hours provided by RNs).
Patient Survey ²	<ul style="list-style-type: none"> • Patients on both NA and non-NA wards rated the quality of emotional care positively in all the instrument's subscales except 'Level of Connection'. There were no significant differences between NA and non-NA wards.
Nurse	
Outcomes	
Nurse Survey ²	<ul style="list-style-type: none"> • More nurses on NA wards reported they were intending to leave (24% v 18.9%), actively looking for another job (33.3% v 20.7%) and higher rates of absenteeism (60% v 50%) than on non-NA wards but these differences were not statistically significant. • Significantly more nurses on NA wards reported they had witnessed or experienced physical assault (26.3% v 3.4%, p<0.01), threat of assault (39.1% vs 36.2%, p=0.02), and emotional abuse (36.2% v 19.0%, p=0.02).
Systems	
Outcomes	
Nurse Survey ²	<ul style="list-style-type: none"> • The proportion of nurses that rated the quality of care on their ward as good/excellent was lower on NA wards (82.1% v 96.6%) than on non-NA wards, but the difference was not statistically significant. • Difference in number of tasks reported to be left delayed on the last shift (4.09 v 4.56) and tasks not done (0.81 v 0.69) between NA and non-NA wards was not statistically significant. • No significant differences were observed in nurses' rating on the Practice Environment Scale <u>except</u> for Staffing and Resource Adequacy. Nurses on NA wards rated Staffing and Resource Adequacy lower (2.30) compared to non-NA wards (2.50, p=0.07).
Work Sampling Study ³	<ul style="list-style-type: none"> • NAs spent the majority of their time engaged in direct care tasks (admission and assessment, hygiene, and mobility) and housekeeping tasks. • Licensed nurses on NA wards delivered/retrieved trays, transported patients and performed housekeeping tasks less frequently than licensed nurses on non-NA wards. • More direct care tasks were performed overall on NA wards. Less complex direct care tasks such as hygiene, mobility and nutrition were performed by both NAs and licensed nurses on NA wards. • NAs spent a higher proportion of their time on 'personal time'. • NAs were observed undertaking tasks outside their scope of practice such as medication administration.

1 = Twigg et al. (2016); 2 = Duffield et al. (2018); 3 = Roche et al. (2017)