

The causes and consequences of nursing shortages: a helicopter view of the research

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Abstract

In Australia, as in most industrialised countries, there is an acute shortage of registered nurses. While there are numerous research reports emanating from Canada, the United States and Great Britain that provide insight into reasons for this shortage, little comparable work has been undertaken in Australia. This paper presents an overview of the complex interlinking set of factors which cause or are the consequences of nursing shortages including lifestyle preferences, workforce composition, quality of work life and workload and the impact of organisational change and altered management practices. It is important that managers in Australian health care settings understand these issues in order to work towards developing sustainable solutions for retention.

Background to the issue

The worldwide nursing shortage is posing challenges not only for those in the nursing profession but also, workforce and facility planners. Significant changes to the ways in which health care is delivered together with the ever-changing needs of consumers are causing planners to rethink workforce estimates. Factors likely to have a significant impact on the provision of nursing services include epidemiological challenges such as more chronic lifestyle diseases and improved life expectancy (AIHW 2000), an increase in patient age and the number of severely ill patients (Jakob & Rothen 1995; Mion et al. 1988), shortened length of stay and an increased community burden with no compensatory transfer of resources (NSW Health 2001; Shamian et al. 1997; O'Brien-Pallas et al. 1997), and an increase in acuity and complexity of hospitalised patients (O'Brien-Pallas et al. 2001; Aiken et al. 2001; Diers & Bozzo 1997). As many health facilities in New South Wales (NSW) are close to reaching the target of 80% day of surgery admissions (DOSA) and 60% day only surgery, 'drive-through surgery' is becoming a reality.

As if these challenges were not significant enough, the environment in which nurses must provide care is also much more complex and consumers more informed than ever before (O'Brien-Pallas et al. 1997; O'Brien-Pallas et al. 2001a). The availability, or more frequently the lack of availability of beds in the public sector, provides immense challenges for and burdens on hospitals. 'Bed block' is constant during the 'winter months' with 'winter' frequently extending up to eight months. Accident and Emergency units are full waiting for a bed to become available and this exacerbates tensions between and within staff groups. As medical staff search for their patients, nursing staff must deal with patient conditions unfamiliar to them, unknown medical staff and many more of them than usual given patient mix, and medical treatment regimens that are unfamiliar. A constantly fluctuating patient population results as internal transfers occur when a bed in a more appropriate clinical unit

becomes available. The impact of constant patient movements on nursing workload has not been quantified here or overseas but there are early indications from the United States that DRG mix affects nurses' workload more than patient acuity. Given these factors it is hardly surprising that reported incidents of verbal and emotional abuse between and amongst staff are on the increase.

Against this backdrop is an increasing shortage of skilled and qualified nursing staff to provide the care required (Duffield & O'Brien-Pallas 2002). Despite the lack of Australian data on the reasons for and impact of nursing shortages, there are many indicators or 'flags' from research conducted overseas that might inform decision-makers in this country. This article will synthesise this body of work with some reference to Australian work and unique features.

The nursing workforce

On the supply side, the profile of the nursing workforce is undergoing significant changes. Decreasing enrolments have been evident for some time (Tang et al. 1999; Tang et al. 1997; Tang et al. 1996; O'Brien-Pallas & Baumann 1999). However, enrolments for 2002 have increased and time will tell whether this trend is sustained. With over 41% of the nursing workforce in this country 40 years of age or older (AIHW 1999 Table 24), aging of the workforce is an issue here as it is overseas with nurses potentially retiring faster than they can be replaced (AIHW 1999; Buchan 1999; O'Brien-Pallas 2002; O'Brien-Pallas et al. 1998). This is exacerbated by the increasing age profile of students entering nursing. The high recognition given to Australian nurses and their preparation (DEST 2001), worldwide shortages and global migration (Buchan 1999; Duffield & O'Brien-Pallas 2002) ensure that in this country the supply side of the equation is uncertain. In addition, nurses here are increasingly better qualified with many clinicians and nurse managers now holding higher degrees (Duffield et al. 2002; DEST 2001; Duffield & Franks 2001; Pelletier et al. 1999). Recent work indicates that nurse managers are at least as experienced and qualified as their health service counterparts increasing their marketability to industries outside health (Duffield & Franks 2002). Multiple career options are also available which only serve to weaken the demand for entry to nursing programs. This is particularly evident amongst those from a non-English speaking background (NESB) where what constitutes 'nursing' overseas is very different from the image portrayed in this country. For example there is little understanding that nursing now requires study at the degree level (Tang et al. 1999).

On the demand side, overseas evidence indicates that the number of nurses employed is increasing, reflecting increased demands for nurses' skills and expertise (Buchan 1999). While similar data do not exist in Australia, there are indications that more nurses will be required with the introduction of new roles such as practice nurses and nurse practitioners. Life style choices, which see more nurses wishing to work part-time, will translate into a need for more nurses to fill available shifts (Creegan et al. in press). In addition, there is recognition amongst employers that nursing qualifications and experience are valuable assets and transportable to a range of other industries (Duffield & Franks 2001; DEST 2001).

Workload and work environment

Workload and work environment are two of the most important factors contributing to the nursing shortage. Unacceptable and unsafe work environments characterised by safety issues such as bullying and harassment impact negatively on retention (O'Brien-Pallas & Baumann 2000; Duffield & O'Brien-Pallas 2002). Nurses worldwide report job demands/workload exceed their capacity to take on work (Baumann et al. 2001; Fagin 2001). The National Review of Nursing Education (DEST 2001) recently reported that Australian nurses complained of excessive workload and burnout, lack of recognition for work done, lack of autonomy, low morale, job dissatisfaction and safety issues (to name but a few).

Overseas, a baccalaureate education (four years study) is associated with improved utilisation of staff and better patient and nurse outcomes (O'Brien-Pallas et al. 2001a; Duffield & O'Brien-Pallas 2002; Doran et al. 2001). Dissatisfaction and burnout increase as nurses' ability to provide basic nursing care required by patients declines and job dissatisfaction becomes a significant factor in their decision to leave (Aiken et al. 2001; Gray et al.

1996). While in Australia we have a population of very well qualified nurses, research here indicates that they are prevented from making patient care decisions, an integral part of the autonomous nursing role (Hoffman et al. in press). Autonomy in practice is critical in staff retention and one of the most important aspects to this is the capacity of nurses to make decisions about their work and how it is done (Aiken et al. 1996).

In terms of the work performed by nurses, once completed much of the 'evidence' of nursing interventions disappears (Lawlor 1991). The 'invisible nature' of nursing is one of its features, as is the vulnerability of patients who often expose their innermost fears and anxieties to nurses and then on recovery, do not wish to face this memory. While patients may respect the work of nurses this is often not enough. The lack of respect for nurses' work by institutional administrators, coupled with the lack of influence over how work is to be undertaken, are significant factors in nurses' decisions to remain in the workforce (Duffield & O'Brien-Pallas 2002; Aiken et al. 2001; Fagin 2001; O'Brien-Pallas 2002). The 'one size fits all' nurse translating into language in this country of 'a nurse is a nurse is a nurse' devalues expertise built up through education and experience. Health facilities would not expect or ask a cardiothoracic surgeon to perform neurosurgical procedures, yet think nothing of 'floating' a cardiothoracic nurse specialist to the neurosurgical ward. While doing so may be unavoidable, the expectation that this nurse will perform at the same level is unrealistic and will almost certainly result in additional anxiety and stress not only for the individual nurse, but also amongst the neurosurgical nursing staff. Unfortunately, even within the profession, at times of peak activity there is often less understanding and consideration provided to colleagues in these circumstances than is desirable.

Once staff shortages occur, there is an increase in workload for those who remain (Baumann et al. 2001). 'Working short' inevitably increases workload before overtime, double shifts and the employment of agency or casual staff are added. The degree of elasticity (spare capacity) within Australian health care institutions is unmeasured but has probably been exceeded as there is some evidence that nurses are expressing distress in this situation (DEST 2001). In addition, as the workforce becomes increasingly casualised, rostering staff becomes more difficult with full-time members often faced with working around those on fixed part-time shifts (Creegan et al. in press). The loss of control over one's work life becomes yet another stressor. Control over practice and worklife have been identified internationally as key work environment issues for nurses (Aiken et al. 2001; Baumann et al. 2001).

Fagin (2001) reports that adjustments to skillmix resulted in more hours being required to deliver care. While the individual salary levels may be lower (compare an assistant in nursing with a registered nurse), if additional hours are required to maintain status quo in terms of patient care, then there is unlikely to be any salary savings at the end of the day. In addition, the quality of care may also be compromised. Tourangeau et al. (in press) found that a richer mix of registered nurses led to a decrease in 30-day mortality rates. Similarly, Needleman et al. (2002) found that a higher proportion of hours of nursing care provided by registered nurses was associated with a higher standard of care and better patient outcomes for hospitalised patients. Of note is the finding that the mean number of hours of nursing care per patient day in this study was 11.4 of which 7.8 hours were provided by registered nurses (Needleman et al. 2002), far in excess of the number of hours of care provided to Australian patients by nurses.

It is unlikely that anyone would become a nurse for the financial rewards. Nevertheless, the perception of poor rewards (monetary and a lack of recognition relative to efforts put into the job) has been shown to contribute to an inability of organisations to retain staff (Aiken et al. 2001; Fagin 2001; O'Brien-Pallas 2001). Aiken et al. (2001) in a five-country study found that burnout, job dissatisfaction and the intention to leave the present job were highly correlated. Higher perceptions of quality of care on the unit, important to nurses, have been found to be associated with higher job satisfaction and retention (McGillis Hall et al. 2001).

Organisational structures and management systems

There are two factors that are to some extent unique to this country in understanding the nursing shortage. The first and perhaps most significant relates to the organisational structures of institutions. Restructuring has been shown overseas to result in low staff morale and diminished loyalty to organisations, thus potentially increasing turnover (Greene & Nordhause-Bike 1998; Beyers 2001). Perhaps more importantly Tourangeau et al. (in press) found restructuring of wards and units led to a loss of experienced nursing staff and an increase in 30-day patient

mortality. In the United States and Canada, trust and loyalty to an employer, both of which are earned, have been lost through processes of restructuring (Beyers 2001; Baumann et al. 2001). All too frequently this loss translates into not only a loss for particular institutions, but also, a loss to the profession as these nurses find alternative employment (Beyers 2001).

The divisional structures so prevalent in Australia have placed nurses (and indeed all clinicians) in silos, leading to mini-fiefdoms that inevitably compete against each other for resources. Nurse executives in current structures are responsible for the quality of the services provided but have limited control over human and financial resources to provide this service (Duffield & O'Brien-Pallas 2002; Aiken et al. 2001; Fagin 2001). Despite the lack of evaluation of divisional structures, in NSW at least, many institutions are moving now to 'clinical streaming' a poorly defined and untested model, but one that removes nurse executives even further from the staff they lead. Little consideration has been given to the impact that this may have on nursing retention despite the evidence from overseas. Of note in the United States, Kramer (1990) found that with downsizing, the number of nurses declined while the number of administrators (non-clinical) increased. This begs the question – what is the core business of health institutions and who provides these services?

The second somewhat unique feature is the limited and difficult access to administrative databases for research and resource planning in Australia. This situation is most apparent in NSW and to a lesser degree in other states. In Canada administrative and registration databases such as the Ontario Hospital Reporting System, The Canadian Institute for Health Information Hospital Discharge Database and provincial nursing registration data can be accessed for relevant nursing studies.

Impact on patient and staff safety

Health care institutions have a non-delegable duty of care to their patients and clients and must ensure that they do not expose patients to unnecessary risks (Forrester & Griffiths 2001). Nevertheless, there are many implications of the current staffing practices that expose not only patients but also, staff to significant risks. Overseas, staffing strategies have been shown to have a negative impact on nurse - job satisfaction (Kramer & Schmalenberg 1988a; Kramer & Schmalenberg 1988b; Blegen 1993; McGillis Hall et al. 2001) and on patient satisfaction with nursing care (Leiter et al. 1999; McGillis Hall et al. 2001). Lower nurse to patient ratios lead to more complications and poorer patient outcomes (Aiken et al. 1996; Needleman et al. 2002). In Intensive Care Units, variation in mortality rates may be partly explained by excess workload (Tarnow-Mordi et al. 2000). Inadequate nurse staffing has been associated with adverse occurrences such as medication errors, decubitus ulcers, pneumonia, and infections both post-operative and urinary tract (ANA 1997; Blegen et al. 1998; Kovner & Gergen 1998). In addition it has been shown that an increase in adverse events increases the number of nursing hours required (Cohen et al. 1999). Fagin (2001) suggests that nurses are the primary surveillance system of the hospital and as a consequence, understaffing or a decrease in hours of care per patient day can lead to 'failure to rescue', defined as the recognition of an impending or actual complication and rapid intervention (Silber et al. 1992; Needleman et al. 2002). Arguably, this is the most significant role of a registered nurse and the factor which most distinguishes a trained from untrained care provider. Failure to rescue ultimately impacts negatively on patients' welfare and health status. On a more positive note, increased levels of RNs are associated with greater patient independence and fewer returns to emergency (McGillis Hall et al. 2001).

To manage the shortages, rather than close beds to match nursing hours available, organisations are using overtime as a staffing strategy (O'Brien-Pallas et al. 2001a; Fagin 2001). This is false economy because an almost perfect correlation has been noted between sick time and overtime ($r = .93, p < .0001$) (O'Brien-Pallas et al. 2001). In addition a perceived high workload results in an increase in musculo-skeletal symptoms (Bongers et al. 1993). For every unit of improvement in nurse physician relationships, a 64% decrease in the number of musculo-skeletal claims has been shown (Shamian and O'Brien-Pallas 2001). Staff and patient satisfaction also improve with a manageable workload (Baumann 2001).

One of the most serious, but rarely documented consequences of inappropriate or inadequate staffing and skillmix faced by institutions in this country is the issue of vicarious liability. Forrester and Griffiths (2001) argue cogently about the risks faced by employers of 'allowing' employees to undertake work that may be beyond their skill level. These authors argue that as long as organisational controls about where and when duties are

performed are provided by the institution, how the duties are performed becomes less relevant in determining negligence. More importantly, they argue that when skillmix is adjusted so that care is delegated by registered nurses to less skilled staff (untrained workers), then the risks of injury to patients and the ensuing litigation that follows increase (Forrester and Griffiths 2001). If a reduction in negligence claims became one of the key performance indicators for CEOs or their salary was determined on the basis of negligence payouts, perhaps the constant adjustments to nursing skillmix and deskilling of care providers would become less frequent. More importantly, Forrester and Griffiths (2001) argue that the fear of increased liability faced by registered nurses supervising less qualified workers may also contribute to nursing shortages. Hospital insurers should note that recently the Joint Commission on Accreditation of Healthcare Organizations (2002) reported that nurse staffing levels were a factor in 24% of 'sentinel events' (events leading to mortality or morbidity).

As if the research findings above are not sufficiently persuasive, the costs associated with these issues are significant. For example skillmix adjustments result in more hours required to deliver care and increased adverse events that increase length of stay and costs (Fagin 2001). Downsizing in the United States resulted in more hospital administrators and increased salary costs while the number of nurses declined (Kramer 1998). The costs of turnover have been estimated to vary from \$US10, 000 to \$25,000 per registered nurse (Jones 1990; Johnston 1991) and there is a 30% efficiency loss in the first month (Gray et al. 1996). Added to this are the casual costs (agency costs and a loss of productivity and continuity of care) and the potential for increased adverse events for both staff and patients that increase costs of service provision. Use of casual staff increases cost per discharge by 36% and increases mortality (JCAHO 2002).

Summary

There are many factors impacting on the delivery of nursing services and staff retention which warrant further research such as, managing an increasingly casualised workforce or the relationship between organisational structures (divisionalised or clinical streams) and staff retention. Organisational structures are a particularly important aspect to consider given the disempowerment experienced by many senior nurses in current structures, exacerbated by the relatively few middle nurse managers who remain. Nursing unit managers are left in the front line to manage their units, the staff and the complexities of health care facilities outlined earlier. In NSW, research indicates that these first-line nurse managers have a mode of one year experience in these positions – hardly adequate or appropriate given the critical role they play in staff retention (Duffield & Franks 2001; Duffield et al. 2001; Duffield & Franks 2002).

In Australia we are losing more nurses than we can replace. Given all that is known about the effects of overwork and increasing demands on nurses elsewhere, the potential for patient error, not to mention the implications for nursing staff, are overwhelming. At a time of increased patient complexity and acuity, health care facilities require more skilled and knowledgeable workers rather than substitution with unskilled workers, currently the norm. In fact, in light of the evidence, it may be counterproductive to employ unskilled workers as this may well increase the workload and dissatisfaction of registered nurses, leading to an even greater shortage long term. In addition, organisations must 'allow' and encourage these highly skilled professionals to have the clinical autonomy they need to make appropriate clinical decisions. Left unchecked, increased nursing workloads and real worklife concerns will continue to erode the status and capacity of nurses to provide the type of care we as consumers expect and to which we are entitled.

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