

The nursing workforce in Canada and Australia: two sides of the same coin

CHRISTINE DUFFIELD AND LINDA O'BRIEN-PALLAS

Christine Duffield is Professor and Director of the Centre for Health Services Management at the University of Technology, Sydney. Linda O'Brien-Pallas is Professor in the Faculty of Nursing and Co-Director of the Nursing Effectiveness, Utilization and Outcomes Research Unit at the University of Toronto and Adjunct Professor in the Centre for Health Services Management, University of Technology, Sydney.

Abstract

This paper compares characteristics of the nursing workforce in Canada and Australia and provides insights into reasons why the shortage of nurses is more critical today than ever before. Workplace issues are discussed in a global context. Factors that affect retention and recruitment are described. Factors that make the current shortage more serious and different than at other times are also presented. Despite the shortage of registered nurses, their replacement with unskilled workers jeopardises the quality of care.

Background

The nursing workforce is facing what has been described as a crisis. Nurses form the largest group in the health care workforce in Australia, Canada and in most developed countries (AIHW 2000). The issue of recruitment and retention, although a periodic problem over several decades, has more recently become a world-wide concern resulting in a shortage of experienced and specialised nurses in the health care systems in the United States, Canada, Australia and the United Kingdom to name a few. There is no indication that this will ease in the short term or that solutions used previously will be successful on this occasion. This paper will not only compare the nursing workforce in Canada and Australia, but also provide insight into reasons why the shortage of nurses is more critical today than ever before.

An inability of the profession to retain nursing staff in the workforce has resulted in staff shortages in areas such as midwifery, critical and intensive care, the operating theatre, accident and emergency, cardiothoracic surgery and, more recently, mental health (AIHW, 1999). Recruitment into nursing programmes has declined in the past decade, further exacerbating the problem (Tang, Duffield, Chen, Choucair, Creegan, Mak & Lesley, 1996; 1997; 1999; O'Brien-Pallas & Baumann, 1999). In Australia, this is particularly an issue with Aboriginal and Torres Strait Islander students (Omeri & Ahern, 1999).

A successful strategy in the past has been to recruit from overseas (see, for example, Rowley, 1989). The ethics of robbing a less financially competitive country of their valuable nursing workforce has been raised as an international issue (Buchan, 2001). At best this is a short-term solution, costly both in a monetary sense and in time. More important, as nursing shortages are being experienced elsewhere, this may no longer be a viable or feasible proposition.

High turnover rates are costly to the health system in terms of decreased quality of care and poor levels of job satisfaction (Stratton et al, 1993). In the US, estimates of the cost of turnover vary depending on the costs included in the analysis. The cost of unfilled positions, hiring costs, orientation and training and low productivity can be as high as \$10,000 (Jones, 1990) and if indirect costs are included may be up to \$25,000 (Johnston 1991). Turnover also decreases productivity. Gray, Phillips and Normand (1996) measured an average efficiency loss of 30% in the first month of work in a new work environment.

The Canadian context

Much work in illuminating factors influencing nurses' retention has been undertaken in the Canadian health system. Ryten (1997), for example, identified a severe national shortage in nursing personnel by the year 2011. However, recent work in Ontario identified that severe shortages will be experienced by the year 2007 (O'Brien-Pallas & Baumann, 1999). Key issues identified by these authors in a landmark study included declining enrolments in nursing programs, a shortage of full-time positions for nurses in response to hospital downsizing and financial restructuring activities, an ageing nursing population, and early retirements on the part of nurses.

Currently, about 40% of the nursing population in Ontario (Canada) is over 45 years of age. These senior nurses also hold the majority of full-time positions in the health system. With an average retirement age of 58.9 years, it is anticipated that 20,000 (25%) fewer nurses will be working in nursing by the year 2007 than are employed today. With declining enrolments in schools of nursing, there will not be sufficient personnel to replace those who are retiring from the system.

The under-30 age cohort is not enjoying full-time employment because of shortages of full-time positions (O'Brien-Pallas & Baumann, 1999). This finding is in contrast to European countries, where the percentage of nurses under the age of 30 ranges from 33.6% in Germany to 40.6% in England (Aiken 2001). Major concerns of nurses in the Canadian workforce include increased acuity in patients and insufficient staffing to meet client need; complex and rapidly changing work environments; concerns about patient safety and quality of care; lack of management and support personnel in the work environment; and deskilling and casualisation of the nursing workforce (O'Brien-Pallas & Baumann, 1999). A recent policy synthesis examining nursing work environments identified nursing workload (demands that exceed the capacity of the individual) as the key issue facing nursing in Canada (Baumann & O'Brien-Pallas et al, 2001).

A survey of 162 nurses who were not employed in nursing or were under-employed (part-time), was recently conducted in Ontario. It revealed that the factors influencing nurses' decisions about their current work status were family responsibilities; lack of full-time positions available due to cuts or layoffs; stressful working conditions including patient-load, patient-nurse ratio and safety issues; personal reasons and shift work (College of Nurses of Ontario, 1999).

Factors cited that would increase receptivity to full-time employment included improved scheduling (increased hours, guaranteed, steady and predictable employment and schedules [rosters]); improved working conditions (more support from fellow nurses, doctors and management personnel, autonomy, empowerment and respect); increased salaries (starting salaries are not comparable to American counterparts and salary scale compression leads to ceiling effects early in career); and controlled patient workloads (to increase the ability to provide quality care, reduce stress and reduce safety issues). Other factors were improved benefits, vacation and sick leave; positions in field of interest (such as emergency or medical/surgical nursing); training and development opportunities; location and proximity to home; and availability of child care during shift work (College of Nurses of Ontario, 1999).

The Australian context

Nursing workforce issues have been a key concern for human resource planning in health in Australia over the past three decades. Nurses comprise 60% of the health care workforce (Palmer & Short, 1994) and much of the industry is both dependent and interdependent on this skilled workforce.

According to the Australian Institute of Health and Welfare (1999), the 1996 population census revealed a significant loss to the workforce of nurses moving out of the labour force altogether, whether temporarily or permanently. Some 19.8% of Australian-born people aged 15 to 64 with a highest qualification in nursing, and some 14.3% of overseas-born nurses, were not in the workforce. In the period from 1993 to 1997, between 12,500 and 19,123 nurses were employed in occupations other than nursing, with only 4-5000 seeking employment in nursing. During the same period, Australian registered nurses working overseas ranged from 3,939 to 4,218. Like their Canadian counterparts, the nurses' demographic profile in New South Wales (NSW) involves a primarily female workforce with a substantial proportion (over 41%) of the nurses being 40 years of age or older (AIHW, 1999: Table 24).

Similar to our international colleagues, we could argue that changes in nurse education, workplace practices, and salary gains have influenced and directed supply and demand within nursing in Australia. These factors, together with increasing patient acuity, limited resources, technological expansion and increased consumer expectations, have made the work environment more complex, challenging and a stressful place for nurses to practise (NSW Health, 1996).

It is our view that these factors contribute to both recruitment and retention issues within the profession. Review of registration statistics in the Canada and the United States reveals that about 77-80% of nurses who maintain their registration are actually employed in nursing (O'Brien-Pallas & Baumann, 1999, Coffman & Spetz, 1999). In NSW there are currently 91,515 registered and enrolled nurses listed in the Nurses Registration Board (NRB) database. However, it is estimated that only about 54,000 of these nurses are actually working in nursing. Based on these estimates, a potential pool of 30-35,000 nurses may be available to be recruited back to nursing (NSW Nursing Workforce Report, 2000).

Given the international nursing shortage reported in the literature, recruitment of nurses from other countries to offset future shortages of nurses may not be possible. See, for example, Liplely & Stokes (1998) and Watson & Hartley (1998) for details of how Australian nurses are being actively recruited for work in the United Kingdom (UK). Recent work in NSW has focussed on recruitment strategies aimed primarily at the school age market to secure their decision to follow a nursing career pathway (Tang, Duffield et al, 1999).

Workforce planning to date has tended to focus on 'manpower' models that are not sensitive to a predominately female workforce. Models are based on male workforce patterns, which assume that recruitment is pivotal and there is an expectation of continuous employment. However, the female workforce participants' relationship with their work is not continuous, nor is there an ability always to predict their commitment to paid work (Davies 1995), because parenting responsibilities will shift their desire and ability to work throughout the course of their life. Furthermore, workforce planning models are often built on the faulty assumptions that underpin supply modelling, which do not consider either the population's need for health care or the impact of the environment in which nursing care is given (O'Brien-Pallas, Baumann et al, 2001).

The global context

A recent study that examined the status of nursing and midwifery personnel world-wide concluded that many developed and developing countries are experiencing serious shortages in adequately-prepared individuals to meet the needs of the population (O'Brien-Pallas, Hirschfeld, Baumann, Shamian et al 1999). World-wide, key concerns related to this workforce included inadequate numbers of trained personnel to meet health system needs; limited opportunities for improved nursing and midwifery preparation in relation to primary health care; lack of legislation to guide nursing practice; limited influence on health policy; unacceptable working conditions; and poor career opportunities (O'Brien-Pallas et al, 1999). Tsay and Lu (1998) found that similar issues were significant in Taiwanese nurses' career development and their intention-to-stay, as well as certain demographic features like age and educational level.

In a recent five-country comparison conducted by Aiken and colleagues (2001), Canadian nurses expressed the lowest intent to leave the profession in the next year (16.6%). This compared with Germany (16.7%), United States (22.7), Scotland (30.3%) and England at 38.9%.

In the United States and the UK, the 'greying' of the nursing workforce has also been identified as a key concern (Buerhaus, 1998; Buchan, 1999). While many nurses in the over-40 cohort enjoy full-time employment, major reasons for taking early retirement have been identified as the physical labour involved in nursing work, as well as a reduction in job satisfaction (O'Brien-Pallas & Baumann, 1999). Madjar et al (1997) report in passing that RNs in Glasgow left nursing for reasons of job dissatisfaction. A study done by Price-Waterhouse (cited in Davies, 1995) indicates that, in England, the nursing workforce model was dependent on the supply of young women.

Much of the persistence of such modelling has not only been driven by gendered concepts of workforce planning, but has been shaped historically by a workforce which was young and left nursing once they were married and/or had children. Whilst this is a dated concept which certainly does not prevail in practice, there have been no changes to maintain women in nursing. Nursing has always been seen as a career for young women.

Work environment and the relationship with workforce

Given the projected shortages, in order to retain nurses it is important to give some consideration to the context in which they work to ensure that it is not a reason for their exodus from the workforce. Over the last ten years, we have seen a number of studies that document the kind of work environment which one might postulate is conducive to higher productivity and efficiency.

Irvine and Evans (1992) and Blegan (1993) conducted a review and meta-analysis of the North American literature on job satisfaction among nurses. Autonomy and good supervisory relations demonstrated a high correlation with job satisfaction in the Irvine and Evans (1992) study, whereas stress (negative association) and organisational commitment were most highly correlated with nurse satisfaction in the Blegan (1993) study. Both studies found support for correlates identified in other theoretical models of nurses' work satisfaction including age, job tenure, head nurse leadership, work overload, role conflict, and feedback. The relationship between pay and job satisfaction was low to moderate. Where job satisfaction decreased, turnover of staff was shown to increase and when intention to leave went up, so did turnover (Irvine & Evans, 1992).

These studies provided frameworks for agencies to build satisfying work environments that would promote job satisfaction and reduce stress, thereby potentially enticing nurses who are not working in nursing to return. However, experience has demonstrated that when financial constraints are introduced, the work-life concerns of nurses are often the casualties of downsizing efforts. Together, these factors, coupled with demographic supply characteristics, directly influence recruitment and retention of nurses into the workforce. Davies (1995) argues that in England nursing workforce planning has been focussed on a high intake and high wastage model. Mackay (1989) asks how nursing can be seen as contributing significantly to the improvement in health of patients when it is part of the "disposable workforce" with few attempts to develop the skills and potential of the workforce, and when the work of nurses is potentially trivialised by being performed by "a perpetual stream of young learners."

Many issues influencing retention in the nursing workforce have been identified in the literature. First, there are personal issues such as burnout and stress (Madjar et al 1997; National Rural Health Alliance, 1998; Williams 1999; College of Nurses of Ontario 2000; Aiken, 2001 (Baumann & O'Brien-Pallas 2001); low self-esteem (Bell et al 1997; NSW Health, 1996); perceptions of being under-valued (QNU, n.d.(c); NSW Health 1996; Baumann & O'Brien-Pallas et al 2001; Aiken et al 2001); influence of family commitments (Battersby, Hemmings, Kermod, Sutherland & Cox 1990; O'Brien-Pallas & Baumann 1992; College of Nurses of Ontario 2000); geographical isolation for rural/remote nurses (Green Nurses, 1997); unsatisfying (Madjar et al 1997; Aiken et al, 2001); concerns about children's education (Huntley, 1994-5; College of Nurses of Ontario, 2000); physical demands (Battersby et al, 1990; O'Brien-Pallas Thomson, Aiken & Bruce, 2001); and lack of balance between homelife and worklife demands (O'Brien-Pallas et al 1992).

Second, there are management or organisational issues such as adequacy of staffing levels and skill mix (Battersby et al 1990; NSW Health 1996; O'Brien-Pallas et al 2001); lack of organisational support (Wolfenden, Blanchard & Probst, 1996; NSW Health, 1996; Aiken et al, 2001; O'Brien-Pallas et al 2001; Baumann & O'Brien-Pallas et al 2001); inability to access affordable childcare facilities (Battersby et al 1990; Green Nurses 1997; NSW Health 1996; Baumann & O'Brien-Pallas et al 2001); cultural diversity (Green Nurses 1997; NSW Health 1996); lack of education or preparation for a particular job (Battersby et al 1990; Harding & Boyd 1991; NSW Health 1996); lack of opportunities for continuing education (O'Brien-Pallas & Baumann, 1999); nursing unit manager role and effectiveness of leadership (Battersby et al 1990; NSW Health 1996; Laschinger et al 2001); budgetary issues (NSW Health 1996; O'Brien-Pallas & Baumann 1999; O'Brien-Pallas, Thomson et al 2001); preparedness of new graduates (Battersby et al 1990); irregular hours of shiftwork (Williams 1999; Baumann, O'Brien-Pallas et al 2001; Aiken et al 2001); lack of skilled colleagues (Williams 1999); relatively poor pay (QNU, n.d.(c); Williams 1999; Aiken et al 2001); workplace health and safety issues (QNU, n.d.(c), O'Brien-Pallas & Thomson et al 2001; Baumann & O'Brien-Pallas et al 2001; ANA 2001); violence and aggression (including verbal) (Bell et al 1997; National Rural Health Alliance 1998; Farrell 1999; Baumann & O'Brien-Pallas et al 2001); and inflexible work practices (insecurity of hours of engagement, hence earning capacity; family responsibilities not being catered for; insufficient maternity leave) (QNU, n.d.(a),(c); O'Brien-Pallas, Thomson et al 2001; Baumann & O'Brien-Pallas et al 2001; NSW Health, 1996).

Third, there are professional issues. They include professional isolation (Bell et al 1997); change in professional roles (QNU, n.d.(b)); professional isolation for rural/remote nurses (Wolfenden et al 1996; Green Nurses 1997; NSW Health 1996); intra- and inter-professional harassment in the workplace (Green Nurses 1997); lack of career structure (Battersby et al 1990; NSW Health 1996); poor attitudes of doctors and other colleagues (Huntley 1994-5; NSW Health 1996); and lack of professional support (Battersby et al 1990; Baumann & O'Brien-Pallas et al 2001).

In addition, issues of recruitment of school students into nursing (see, for example, Tang, Duffield et al 1996) offer further indications of obstacles to an expanding nursing workforce.

Why is this more serious now?

Because of the ageing baby boomer population, all types of professional workforces (for example, medicine, nursing, teaching, and university professors) will experience significant losses in numbers before 2011. In some professions, early retirements are moving the challenges of shortage temporally much closer. In previous rounds of nursing shortages, opportunities to replace those who left were easily addressed. However in 2001 demographic shifts do not allow us the luxury of inactivity. Entry age to nursing is older than ever before – added to an already ageing workforce.

Given this scenario, retaining professionals in the workforce becomes a critical issue. We need to consider the more serious consequence in the future is the lack of nurses with specialist skills given advances in care and technology. Compounding the problem is the fact that highly specialised nurses are increasingly expected to be multi-skilled and this impacts on job confidence and satisfaction. In the year 2001, would we ask cardiothoracic surgeons to undertake neurosurgery? While the answer seems obvious, this is more or less what is happening with the nursing workforce.

In order to deal with cost over-runs and an inability to retain nurses in unacceptable work environments, health systems have begun to deskill the nursing workforce. Research has shown that these staffing strategies impact negatively on a range of factors. These include nurse job satisfaction (Kramer and Schmalenberg 1988; Blegen 1993), patient outcomes (Aiken, Smith and Lake 1994; Brooten and Naylor 1995; Blegen et al 1998; Kovner and Gergen 1998), and satisfaction with the care received (Leiter, Harvie and Frizzell 1998).

Reductions in either nurse-patient ratios or nursing skill mix have a negative impact on patient outcomes. Hesterly and Robinson (1990) identified a decline in quality of patient care as the availability of registered nurses decreased during a nursing labour shortage. The functions undertaken by nurses are directly related to a variety of patient outcomes including lowering mortality rates (Fagin 2001).

The quality of patient care appears to have a strong relationship to the volume and type of nursing care provided. In the late 1980s and early 1990s, numerous studies found that richer RN staffing levels and skill mix were important factors in achieving lower than expected mortality (Aiken, Smith and Lake 1994; Knaus et al. 1986; Mitchell et al 1989; Hartz et al 1989; Krakauer et al 1992). Prescott (1993) concluded that there is substantial evidence linking RN staffing levels and mix to improved mortality, length of stay and morbidity outcomes, and suggested that practices used previously for achieving short term savings, such as downward substitution among nursing personnel, may actually undermine the hospital's competitive edge (as cited in O'Brien-Pallas, Thomson et al, 2001).

Dramatic shifts in attitudes of those who are entering the workforce could have many long-term implications for the future nursing workforce. Workplace adjustment and intergenerational differences between matures, boomers and Generation Xers have been identified by Kupperschmidt (1998) and Santos & Cox (2000). Boomers are angry at what they interpret as a lack of commitment and the arrogant attitudes of the Generation Xers. They are tired of the revolving door orientations they must provide for Generation Xers. However Generation Xers argue that what is seen as "arrogance" is actually self-reliance. While Generation Xers voiced commitment to the organisation, they often anticipated movement out of the institution and possibly the profession of nursing. If these findings hold up in other studies, then the challenge of engaging the younger population into the nursing workforce, especially if significant improvements are not made in the work environment, will be difficult as they have many more career options available than before offering significant salaries with better conditions (such as no shift work).

What are the implications for Australia?

Given the evidence from overseas, it is surprising that substitution of registered nurses with unskilled workers (shown to jeopardise the quality of care) is being proposed and enacted in this country. At a time when patient care is more complex than ever before it is time to skill up rather than 'dumb down' nursing. The introduction of unskilled care providers impacts on the roles and work of those already in the workforce (Norrish & Rundall 2001).

Despite the rhetoric, there is no real understanding of the work of registered nurses in this country and their capacity to 'rescue' patients – a concept gaining credence in the United States as an aspect which delineates a skilled from unskilled nursing workforce (Fagin 2001). Role changes, with no data to support the efficacy of these positions, is a short term solution to what is a much larger problem with potentially fatal outcomes for consumers.

In addition, there is evidence that nurses are moving to positions outside nursing and health care because of their skills (Duffield and Franks, 2001). While the health care system and its managers are perhaps not valuing and rewarding nurses, other industries are doing so. Given career choices and the values held by Generation Xers, the attraction of nurses to other professions and careers is likely to accelerate.

There is evidence from overseas of a negative relationship between hospital restructuring, patient outcomes and job satisfaction of nurses (Sovie 1999; Aiken, Smith and Lake 1994). However, the effects and costs of changing to a divisional structure in Australia have never been evaluated or even given any consideration. Despite this lack of evaluation, the introduction of another structure, 'clinical streaming', is now being proposed. It is possible that these structures, having stripped senior nurse managers of responsibility for nursing services, have contributed to the exodus of nurses from the workforce. These structures have certainly made it difficult for nurse leaders to enhance the professionalism of nursing amongst their staff and perhaps more importantly, have contributed to a lack of career pathways for nurses. How many nurses achieve senior non-nursing positions despite the fact they are obviously well qualified and experienced? See for example Duffield, Moran et al (2001) and Duffield and Franks in press(a).

In summary, clinical career pathways and professional rates of pay may have had a positive impact on the attraction of working in nursing, but there continues to be a failure to effectively support and encourage the bedside nurse (Duffield & Lumby 1994; Duffield, Donoghue & Pelletier 1996). This requires different workforce planning strategies and changes in cultural practices, which alienate nurses from pursuing their clinical practice. With limited career advancement opportunities, it is the coal face of nursing which needs a critical re-examination and one which we can see emerging as a result of exploration into strategies to attract nurses back to work rather than measures designed to retain them in the workforce.

References

- American Nurses' Association. Health & Safety Issues <http://www.NursingWorld.org/surveys/hssurvey>. Accessed October 2001.
- Australian Institute for Health & Welfare. Australia's Health 2000. <http://www.aihw.gov.au/publications/health/ah00>. Accessed October 2001.
- Australian Institute for Health & Welfare 2001. Nursing labour force 1999. AIHW catalogue no. HWL 20. Canberra AIHW (National Health Labour Force series no.20).
- Aiken LH, Clarke SP, Sloane DM, Sochalski JA, Busse R, Clarke H, Giovannetti P, Hunt J, Rafferty AM & Shamian J 2001, 'Nurses' reports on hospital care in five countries', *Health Affairs*, vol 20, pp 43-53.
- Aiken LH, Smith HL & Lake ET 1994, 'Lower Medicare mortality among a set of hospitals known for good nursing care', *Medical Care*, vol 32, pp 771-87.
- Amick BC, Kawachi EH, Coakley D, Lerner S, Levine S & Colditz GA 1998, 'Relationship of job strain and iso-strain to health status in a cohort of women in the United States', *Scandinavian Journal of Work, Environment and Health*, vol 24, pp 54-61.

- Australian Institute of Health and Welfare 1999, Nursing Labour Workforce. HWL14. 1999 Canberra, Australian Institute of Health and Welfare.
- Battersby D, Hemmings L, Kermode S, Sutherland S & Cox J 1990, Factors influencing the turnover and retention of registered nurses in New South Wales hospitals. Glebe, The New South Wales College of Nursing.
- Baumann A, O'Brien-Pallas L, Armstrong-Stassen M, Blyth, J, Bourbonnai, R, Cameron S, Irvine Doran D, Kerr M, McGillis Hall L, Vezina M, Butt M, & Ryan L June 2001, Commitment and care, The benefits of a health workplace for nurses, their patients and the system. Ottawa: Canadian Health Services Research Foundation and The Change Foundation. www.chsrf.ca/docs/finalrpts/pscomcare_e.pdf. Accessed October 2001.
- Bell PF, Daly J & Chang EML 1997 'A study of the educational and research priorities of registered nurses in rural Australia', *Journal of Advanced Nursing*, vol 25, pp 794-800.
- Benner P 1984, From Novice to Expert: Excellence and Power in Clinical Nursing Practice. Menlo Park, CA: Addison-Wesley.
- Blegen M 1993, 'Nurses' job satisfaction: a meta-analysis of related variables', *Nurse Research*, vol 42, pp 36-41.
- Blegen MA, Goode CJ & Reed L 1998, 'Nurse staffing and patient outcomes', *Nursing Research*, vol 42, no 1, pp 36-41.
- Brooten D, Naylor MD 1995, 'Nurses' effect on changing patient outcomes', *Image: Journal of Nursing Scholarship*, vol 27, pp 95-99.
- Buchan J 2001, 'Nurses moving across borders: 'brain drain' or freedom of movement?', *International Nursing Review*, vol 48, pp 65-7.
- Buchan J 1999, 'The 'greying' of the United Kingdom nursing workforce: implications for employment policy and practice', *Journal of Advanced Nursing*, vol 30, pp 818-26.
- Buerhaus PI 1998, 'Is another RN shortage looming?', *Nursing Outlook*, vol 46, pp 103-8.
- Coffman J, Spetz J 1999, 'Maintaining an adequate supply of RNs in California', *IMAGE: Journal of Nursing Scholarship*, vol 31, pp 389-93 .
- Davies C 1995, *'Gender and the Professional Predicament in Nursing'*, Buckingham: Open University Press.
- Duffield C, Donoghue J & Pelletier D 1996, 'Do clinical nurse specialists and nursing unit managers believe that the provision of quality care is important?', *Journal of Advanced Nursing*, vol 24, pp 334-40.
- Duffield C, Franks, H 'Career paths beyond nursing and the contribution of nursing experience and skills in attaining these positions', (*International Journal of Nursing Studies*, in press). (a)
- Duffield C, Lumby J 1994, 'Caring nurses: the dilemma of balancing costs and quality', *Australian Health Review*, vol 17, no 2, pp 72-83.
- Duffield C, Moran P, Beutel J, Bunt S, Thornton A, Wills J, Cahill P & Franks H. 'Profiles of first-line nurse managers in New South Wales, Australia, in the 1990s', (*Journal of Advanced Nursing*, in press).
- Fagin CM 2001, When care becomes a burden: diminishing access to adequate nursing. Milbank Memorial Fund. [www://milbank.org/010216fagin.html](http://www.milbank.org/010216fagin.html) Accessed: February 2001.
- Farrell GA 1999, 'Aggression in clinical settings: nurses' views- a follow-up study', *Journal of Advanced Nursing*, vol 29, pp 532-541.
- Gray AM, Phillips VL & Normand C 1996, 'The Costs of Nursing Turnover: evidence from the British National Health Service', *Health Policy*, vol 38, pp 117-28.
- Green Nurses 1997, Recruitment and retention issues. *Green Nurses* vol.19 (Jul).
www.greennurses.com.au/19.htm Accessed: December 1999.
- Harding E, Boyd N 1991, 'Extended critical care orientation program: a recruitment/retention incentive', *Confederation of Australian Critical Care Nurses Journal*, vol 4, pp 18-21.
- Hartz AJ, Krakauer H, Kuhn EM, Young M, Jacobsen SJ, Gay G, Muenz L, Katzoff M, Bailey RC & Rimm

- AA 1989, 'Hospital characteristics and mortality rates', *New England Journal of Medicine*, vol 321, no 25, pp 1720-25.
- Hesterly SC, Robinson M 1990, 'Alternative care-givers: cost effective utilization of RNs', *Nursing Administration Quarterly*, vol 14, no 3, pp 18-23.
- Huntley B 1994, 'Factors influencing recruitment and retention: why RNs work in rural and remote area hospitals', *Australian Journal of Advanced Nursing*, vol 12, no 2, pp 14-19.
- Irvine D, Evans M 1992, Job satisfaction and turnover among nurses: a Review and Meta-analysis. (Quality of Nursing Worklife Research Unit Monograph Series No.1). Toronto ON: University of Toronto and McMaster University, Nursing Effectiveness, Utilization, Outcomes Research Unit.
- Johnston CL 1991, 'Sources of work satisfaction/dissatisfaction for hospital Registered Nurses', *Western Journal of Nursing Research*, vol 13, pp 503-13.
- Jones CB 1990, 'Staff nurse turnover costs: Part II. Measurements and results', *Journal of Nursing Administration*, vol 20, pp 27-32.
- Josephson M, Vingard E 1998, 'Workplace factors and care seeking for low-back pain among female nursing personnel. MUSIC-Norrtalje Study Group', *Scandinavian Journal of Work, Environment and Health*, vol 24, pp 465-72.
- Knaus WA, Draper EA, Wagner DP & Zimmerman JE 1986, 'An evaluation of outcome from intensive care in major medical centers', *Annals of Internal Medicine*, vol 104, pp 410-18.
- Kovner C, Gergen PJ 1998, 'Nurse staffing levels and adverse events following surgery in U.S. hospitals', *IMAGE: Journal of Nursing Scholarship*, vol 30, pp 389-93.
- Krakauer H, Bailey KJ, Skellan KJ, Stewart JD, Hartz AJ, Kuhn EM, Rimm AA 1992, 'Evaluation of the HCFA model for the analysis of mortality following hospitalization', *Health Services Research*, vol 27, pp 317-35.
- Kramer M, Schmalenberg C 1988, 'Magnet Hospitals: Institutions of excellence. Part I', *Journal of Nursing Administration*, vol 18, no 1, pp 13-24.
- Kramer M, Schmalenberg C 1988, 'Magnet Hospitals: Institutions of excellence. Part II', *Journal of Nursing Administration*, vol 18, no 2, pp 11-19.
- Kupperschmidt BR 1998, 'Understanding generation X employees', *Journal of Nursing Administration*, vol 28, no 12, pp 36-43.
- Laschinger HKS, Finegan J, Shamian J & Almost J 2001, 'Testing Karasek's demands-control model in restructured health care settings: effects of job strain on staff nurses' quality of life', *Journal of Nursing Administration*, vol 31, no 5, pp 233-243.
- Leiter MPP, Harvie P & Frizzell C 1998, 'The correspondence of patient satisfaction and nurse burnout', *Social Science & Medicine*, vol 47, pp 1611-17.
- Lipley N, Stokes B 1998, 'A real solution to nursing shortages?', *Nursing Standard*, vol 12, p12.
- Mackay L 1989, *Nursing a Problem*, Milton Keynes, Open University Press.
- Madjar I, McMillan M, Sharkey R, Cadd A, & Elwin C. 'Project to review and examine expectations of beginning registered nurses in the workforce, 1997', Surry Hills: Nurses Registration Board of NSW. http://nursesreg.health.gov.au/corporate-services/hprb/nrb_web/exp_brns/chapter2.htm Accessed: December, 1999.
- Mitchell PH, Armstrong S, Simpson TF & Lentz M 1989, 'American Association of Critical-Care Nurses Demonstration Project: Profile of excellence in critical care nursing', *Heart and Lung, Journal of Critical Care*, vol 18, no 3, pp 219-37.
- National Rural Health Alliance (1998). Rural and remote nurses. Issues Paper 4. www.ruralhealth.org.au/ip4.htm. Accessed: December 1999.

- Norrish BR & Rundall TG 2001, 'Hospital restructuring and the work of registered nurses', *Milbank Quarterly*, vol 79, no 1, pp 54-79.
- NSW Health 1996, 'Final report: Nursing recruitment and retention taskforce'. August. www.health.nsw.gov.au/nursing/progresrepsep2001.pdf . Accessed October 2001.
- Nursing & Health Services Research Consortium 2001, 'NSW Nursing Workforce Research Project'. www.health.nsw.gov.au/nursing/projects.htm#wforceres. Accessed October 2001.
- O'Brien-Pallas L, Hirschfield M, Baumann A, Shamain J, Adams O, Baknok I, Isaacs E, Land S, Salvage J, Bisch SA, Miller T, Islam A & Luba M 1999, 'An evaluation of WHO resolution 45.5: health human resource implication', *Canadian Journal of Nursing Research*, vol 31, pp 51-67.
- O'Brien-Pallas L, Thomson D, Alksnis C & Bruce S 2001, 'The economic impact of nurse staffing decisions: Time to turn down another road?', *Hospital Quarterly*, vol 4, pp 42-50.
- O'Brien-Pallas L, Baumann A, Donner G, Tomblin Murphy G, Lochhaas Gerlach J, & Luba M 2001, 'Forecasting models for human resources in health care', *Journal of Advanced Nursing*, vol 33, pp 120-129.
- O'Brien-Pallas L, Baumann A 2000, 'Towards evidence-based policy decisions: a case study of nursing health human resources in Ontario', *Nursing Inquiry*, vol 7, pp 248-57
- Palmer GR, Short SD 1994, *Health care and public policy: an Australian analysis* (2nd edition), Melbourne, Macmillan.
- Prescott PA 1993, 'Nursing: an important component of hospital survival under a reformed health care system', *Nursing Economics*, vol 11, 192-99.
- Queensland Nurses' Union (QNU) (n.d.(a)). 'Queensland Nurses' Union of Employees Submission to the Senate Inquiry into the Workplace Relations Amendment (More Jobs, Better Pay) Bill', www.qnu.org.au/SenatesubIR.htm Accessed: December 1999.
- Queensland Nurses' Union.(QNU) (n.d.(b)). 'Have we forgotten the care in health care?', www.qnu.org.au/havewe.htm Accessed : December 1999.
- Queensland Nurses' Union.(QNU) (n.d.(c)).1999 'Valuing Nursing', www.qnu.org.au/valuingnursing.htm Accessed: December 1999.
- Rowley G 1989, 'Disillusionment or contentment: recruitment of nurses from United Kingdom for the Rozelle Hospital', *The Lamp*, pp 22-3.
- Ryten E 1997, A statistical picture of the past, present, and future of nursing in Canada, Ottawa, ON, Canadian Nurses' Association.
- Santos SR, Cox K 2000, 'Workplace adjustment and intergenerational differences between matures, boomers, and Xers', *Nursing Economics*, vol 18, no 1, pp 7-13.
- Tang KC, Duffield C, Choucair S, Chen XC, Creegan R, Mak C & Leslie G 1996, *Perceptions of nursing as a career choice among a sample of year 11 and 12 students speaking either Arabic, Serbo-Croatian, Spanish, Turkish or Vietnamese at home in Sydney*, ISBN: 0 7310 9238 4, State Health publication No: (NCS) 96 0127.
- Tsay S, Lu M 1998, 'The relationship between nurses' career development and their intent-to-stay', *Nursing Research [China]*, vol 6, pp 96-108.
- Watson S, Hartley J 1998, 'More trusts look overseas for trusts', *Nursing Standard*, vol 13, pp 8-9.
- Williams G 1999, 'Fees, marketing, leadership: Nursing's long overdue facelift', *Nursing Review*, December, pp 10-11.
- Wolfenden K, Blanchard P & Probst S 1996, 'Recruitment and retention: perceptions of rural mental health workers', *Australian Journal of Rural Health*, vol 4, pp 89-95.