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CONTENTS

Development of a clinician-led research agenda for general practice nurses

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KEY WORDS

General practice, practice nurse, research, research priorities.

ABSTRACT

Objective
This study sought to identify and prioritise research issues as perceived by Australian general practice nurses. In this context, a research priority refers to the most pressing research problems that necessitate exploration to improve clinical practice.

Design
This paper reports the findings of a two-round Delphi study. Initially, focus groups identified research issues. Subsequently, an online survey facilitated ranking of these issues on a 5-point Likert scale.

Setting
Australian general practices.

Subjects
Twenty-five practice nurses participated in the focus groups and 145 practice nurses responded to an online survey.

Main outcome measure(s)
The main outcome measure was the prioritisation of research issues by practice nurses.

Results
The focus groups identified 53 research issues. These could be broadly classified as issues related to: (1) the practice nurse role and professional development; (2) general practice service delivery; and (3) disease prevention and health promotion. Survey data identified 34 priority areas from the 53 issues, that were considered important as indicated by a mean score greater than 4.0. These included 17 items related to disease prevention and health promotion, 12 items related to the practice nurse role and professional development and five items related to general practice service delivery.

Conclusions
Issues identified in this study reflect current patterns of practice nurse workload. Emphasis needs to be placed on the translation and use of evidence by practice nurses, as well as the ways in which evidence can support and promote development of their role. The study findings highlight the need for research that is responsive to clinical demands.

INTRODUCTION

Nurses have been employed in Australian general practices for many years. These practice nurses have the potential to provide leadership within the multidisciplinary primary care team as they offer services across the lifespan ranging from health promotion, childhood assessment and immunisation, to lifestyle modification and management of chronic and complex disease. However, it is not until relatively recently that their significant potential contribution to improving the standards of care and range of services available within general practice has been widely recognised (CDNM 2004). Increases in Federal Government funding for employment, education, professional support and the introduction of new item numbers to provide direct remuneration for practice nurse services has contributed to significant role development of practice nurses (Halcomb et al 2005).

Significant descriptive research has now been conducted in Australia to describe the roles of practice nurses (Halcomb et al 2005; Mills & Fitzgerald 2008; Patterson et al 1999a, 1999b; Patterson and McMurray 2003; Senior 2008; Watts et al 2004), their educational and training needs (Watts et al 2004; Meadley et al 2004) and consumer perceptions (Cheek et al 2002; Hegney, Price et al 2004; Hegney, Buikstra et al 2004). Preliminary work has also been conducted to explore the potential of expanding practice nurse roles in areas such as chronic disease management (Pilotto et al 2004; Halcomb et al 2004). This literature describes the complexity of issues related to general practice nursing, the significant impact of funding models on the general practice nurse's role and scope of practice, the lack of recognition of the general practice nurse's role amongst professional peers and consumers and the need for further well designed research that will provide an evidence base for the specialty.

In spite of its contribution to the body of knowledge, much of the research conducted to date has been driven by researcher interest and the focus on available funding, rather than strategic clinical priority areas. Recently, a number of projects based on national health priorities have been funded. A national general practice nurse conference highlighted a desire by practice nurses to develop strategic partnerships with the tertiary sector to evaluate current models of care as well as to formally investigate the efficacy of current interventions. An understanding of nurses' research priorities is essential to ensure that clinically focussed; strategic research is undertaken that meets the needs of nurses, consumers' policymakers, and politicians. Such research will assist in developing an evidence base for practice nurses in addition to optimising the quality of care provided.

This study sought to identify and prioritise research issues as perceived by Australian general practice nurses. In this context, a research priority refers to the practice nurses' perceptions of the most pressing nursing research problems that necessitate exploration to improve clinical practice and patient care (Chang and Daly 1998). These data will facilitate the strategic development of recommendations for future research policy and priorities in terms of their clinical relevance (Chang and Daly 1998). Additionally, the results will potentially facilitate the allocation of limited human and financial resources to clinically relevant research programs that will optimise clinical practice and patient outcomes.

METHODS

The role of involving clinical nurses in establishing research priorities is well documented in a range of nursing speciality groups (Annells et al 2005; Bäck-Pettersson et al 2008; Bell et al 1997; Chang and Daly 1998; Powell 2003). There are numerous methods of achieving consensus on research priority areas (Wortman et al 1998). Key considerations in the selection of the method for this study was the desire to achieve a nationwide consensus amongst a geographically dispersed group and be inclusive of the large number of relatively isolated general practice nurses (Watts et al 2004), whilst being mindful of the current research burden on potential participants.

A modified Delphi technique was used to generate and rank research issues of importance to the participants (Powell 2003). Researchers were conscious of the number of survey projects currently being undertaken with Australian practice nurses, therefore, modifications were made to the pure Delphi technique to reduce potential respondent burden and promote ownership of the project by the general practice nurses working in the clinical setting (Cohen et al 2004). These modifications included use of electronic communications and a reduction in the number of rounds.

Bäck-Pettersson (2008) asserts that describing the demographics and educational background of the study participants is important in order for the reader to assess the study results. To achieve this, the online survey contained 15 items regarding the individual participants' demographics, access to information and evidence based practice. These data provide not only a demographic profile but also identify the availability and use of resources related to evidence based practice by nurses in this clinical setting.

Study Design

Approval for the conduct of this study was obtained from the Human Research Ethics Committee of the University of Western Sydney. The study was also endorsed by the Australian Practice Nurses Association, Policy and Research Committee.

Round One - Creating

In the first round, focus groups were used to identify primary areas or questions of importance. Participants were asked to identify up to five key research issues in each of the following four broad categories; (1) clinical research that is of highest value to patients; (2) clinical research that is of highest value to the practice nurse role and professional development; (3) clinical research that is of highest value to improving service delivery; (4) clinical research that would facilitate disease prevention and health promotion (Chang and Daly 1998). These categories were used to assist participants to take a broad approach to the task of identifying priority areas. Focus groups were audio recorded to facilitate subsequent analysis.

Invitations to participate in the focus groups were conveyed to all Divisions of General Practice in the Sydney metropolitan area at the time of the study. Practice nurse project officers from these Divisions were asked to indicate their interest in hosting a focus group of their members. Those Divisions that expressed an interest were provided with study information sheets to enable them to recruit interested members to attend the focus group. Recruitment was confined to this area given the resource constraints of the project and location of the researchers. Practice nurses known by the Australian Practice Nurses Association Policy and Research Committee to be engaged in research were invited to participate in a 'virtual' focus group. This strategy was used given the relatively small number of nurses with research experience identified and their geographical dispersion. The data from the focus groups were evaluated using a process of iterative analysis to identify key themes that has been previously described (Halcomb and Davidson 2006).

Round Two - Prioritising

In the second round, participants completed an online survey (Survey Monkey™) where they provided demographic information and graded the relative importance of each item on a five point Likert scale. This scale ranged from one unimportant to five very important.

Invitations to participate in the online survey and survey links were distributed to all Australian Divisions of General Practice and members of the Australian Practice Nurses Association. These organisations were asked to forward the information and link to practice nurses in their regular newsletters and correspondence and place a link to the survey on their websites. Dissemination of information via the Divisions of General Practice was followed up on two occasions by the research team via telephone or email to ensure that the information had been disseminated to practice nurses within each Division. At the completion of the survey, participants were asked to forward information about the project to relevant colleagues. Identifying general practice

nurses has been identified as problematic in a number of previous investigations (Watts et al 2004; Halcomb et al 2008). This difficulty stems from their employment by numerous small businesses rather than by large corporations or government health services as in the acute sector and the absence of identification of this specialty group in nursing registration data (Halcomb et al 2008). Given this recruitment strategy, it is not possible to identify how many practice nurses actually received information about this study, and without a response denominator it is not possible to calculate a response rate. However, other national surveys of this participant group have yielded similar response numbers (Halcomb et al 2008; Watts et al 2004).

The online survey data were imported into SPSS™ and analysed using descriptive statistics. The mean value was calculated for every item. Items were then ranked based on their mean score.

RESULTS

Participant Demographics

Twenty-five practice nurses were recruited for the various focus groups. Whilst six individuals were purposively selected based on their research experience and current clinical practice, the remaining 19 participants were practice nurses with no specific research experience. The demographics of the 19 practicing nurses were similar to those of survey participants which are discussed in table one. As new topic areas had ceased to emerge from continued discussions it was identified that data saturation had been achieved.

One hundred and forty-five practice nurses undertook the online survey; however, only 125 (86.2%) participants provided complete data and thus are included in the data analysis. Demographic and educational characteristics of the included participants are presented in table 1. By far the majority of participants were female registered nurses, who ranged in age from 23 to 63 years (mean 46.2 years). Whilst most participants had significant experience in the nursing workforce (mean 22.1yrs, Range 1-42yrs), they were significantly less

experienced in the general practice setting (mean 6.7yrs, range 0-32yrs).

Table 1: Demographic Characteristics of Survey Participants

Variable	No.
Gender (female/male)	123 / 2
Age (range)	46.2 years (23 - 63yrs)
Level of Education	
Masters / Doctorate	7 (5.6%)
Graduate Certificate / Diploma	39 (31.2%)
Bachelors Degree	39 (31.2%)
Hospital Nursing Certificate	37 (29.6%)
Other	2 (1.6%)
Nursing classification (Registered/Enrolled)	113 (90.4%)/12 (9.6%)
Years in Nursing (range)	22.1 years (1 - 42yrs)
Years in Practice Nursing (range)	6.7 years (0 - 32yrs)

Research Priorities

Focus Groups

The focus groups identified 73 areas of interest/research questions. A number of these areas were duplicated, contained insufficient detail (e.g. osteoporosis) or were not researchable problems (e.g. relationship between practice nurse wage and role). The researchers observed that participants had some difficulty in identifying specific research topics. It was hypothesised that this might have been related to the limited engagement of participants with peer reviewed literature. Indeed, several participants reported that they could not recall having recently read a publication describing research.

Whilst the researchers' identified that some of the topics generated by the focus groups already had a substantial evidence base in the literature, they did not exclude such items from the analysis. It was also identified there were significant areas of overlap between these broad categories. A process of content analysis was used to refine these data into the final 53 items that comprised the online survey. These refined items were better reflected by the three broad categories of clinical research that is of highest value to: (1) practice nurse role and professional development (12 items); (2) general practice service delivery (nine items); and (3) disease prevention and health promotion (32 items).

Online Survey

The survey data identified 53 priority areas with mean scores ranging between 3.53 and 4.56, indicating they were at least somewhat important to participants. Thirty-four (64.1%) items achieved a mean score greater than 4.0, meaning they were ranked as being 'important' to participants. These

34 items comprised of 17 (53%) items related to disease prevention and health promotion, 12 (100%) items related to practice nurse role and professional development and five (56%) items related to general practice service delivery. Table two lists the 'important' items in order of priority.

Table 2: Highest Priority Research Issues

Research Issue	Mean Score	Category
Education needs of Practice Nurse regarding health promotion	4.6	Practice nurse role
Identifying whether Practice Nurse services provided under Medicare improve outcomes	4.5	Disease prevention
Characteristics of effective wound care	4.5	Disease prevention
Factors affecting adherence to treatment in diabetes	4.5	Disease prevention
Additional clinical skills by nurses moving to practice nursing	4.5	Practice nurse role
Whether nurse led clinics improve attendance & compliance	4.4	Service delivery
Effect of routine triaging by Practice Nurse on minor illness management	4.4	Service delivery
Effect of care plans on health outcomes in chronic & complex disease	4.4	Disease prevention
Identifying how Practice Nurses can decrease GP workload	4.4	Practice nurse role
How Practice Nurse make clinical decisions in their practice	4.4	Practice nurse role
Effective interventions in managing chronic wounds	4.4	Disease prevention
Understanding GPs' perceptions of the Practice Nurse role	4.3	Practice nurse role
Practice Nurse's perception of their role in general practice	4.3	Practice nurse role
Aspects of care most valued by general practice consumers	4.3	Practice nurse role
Cost effectiveness of Practice Nurse role	4.3	Practice nurse role
Effect of routine screening for lifestyle risk factors on care & outcomes	4.3	Disease prevention
Whether motivational counselling by Practice Nurses improved lifestyle risk factor modification	4.3	Disease prevention
Most effective risk factor screening tools	4.3	Disease prevention
Factors impacting on childhood immunisation	4.3	Disease prevention
Effectiveness of generalist versus specialist roles of Practice Nurses	4.3	Practice nurse role
Effective interventions for managing adult obesity	4.3	Disease prevention
Factors affecting adherence to treatment in asthma & COPD	4.3	Disease prevention
Factors affecting adherence to treatment in obesity	4.2	Disease prevention
Consumer perception of practice nurse role	4.2	Practice nurse role
Whether immunisation accreditation of practice nurses affects childhood immunisation rates	4.2	Service delivery
Effective interventions for managing clients with cardiovascular disease	4.2	Disease prevention
Explore models of teamwork currently used in general practice setting	4.2	Service delivery
Factors that affect adherence to treatment in cardiovascular disease	4.2	Disease prevention
Communication strategies used in general practice teams	4.2	Service delivery
Effective interventions for managing respiratory disease	4.2	Disease prevention
Views of general practitioners on nurse practitioner role in general practice	4.1	Practice nurse role
Identifying role of practice nurse in child health	4.1	Practice nurse role
Effective intervention for managing obesity in children	4.1	Disease prevention
Factors impacting on uptake of men's health screening	4.1	Disease prevention

Barriers and access to evidenced based practice

To explore the degree to which participants engaged in continuing professional development they were asked to identify how many paid and unpaid study days they had undertaken in the preceding year.

Participants reported that they had participated in between 0-30 paid study days (mean 3.6 days) and between 0-40 unpaid study days (mean 4.5 days) in the past twelve months.

All participants reportedly had a computer and 124 (99.2%) participants had internet access in the workplace. However, this result may be potentially skewed by the online method of survey data collection. A total of 117 (93.6%) participants stated they used their work computer to search for information.

Given the relative isolation of practice nurses from the rest of the health system, participants were asked about their ability to access a professional library. Indeed, only 84 (67.2%) participants reported that they were able to access professional books and journals from a local source. In terms of membership to professional organisations, 65 (52.0%) participants were members of the Australian Practice Nurses Association, 23 (18.4%) participants reported being members of the Royal College of Nursing Australia, and 36 (28.8%) participants were members of another specialty nursing organisation. The most common memberships in the other category were to the Australian Nursing Federation (27; 21.6%) and Royal Australian College of General Practitioners (affiliate membership)(10; 8.0%).

DISCUSSION

Compared to the investigation of research priorities amongst other specialty groups (Annells et al 2005; Bäck-Pettersson et al 2008; Bell et al 1997; Chang and Daly 1998), this study identified relatively few research areas which to prioritise. Although not a specific aim of this investigation, a significant finding that came out of the focus groups was that many participants did not have an understanding of research, its role in evidence-based practice and the existing research literature. This was demonstrated through the identification of potential research issues where large bodies of literature already exist, for example, in relation to the choice of wound care products and wound healing. This finding was supported by the survey results, many of the highest priority research issues are addressed extensively in the current literature and so would have likely not have been rated so highly if the participants had the

skills to locate, translate and utilise this evidence. Although such findings are consistent with the literature describing the barriers to evidence-based practice (Tagney and Haines 2009; Bertulis 2008), such a finding highlights the need to explore ways of improving the dissemination of research to practice nurses as well as investigating strategies to translate existing evidence to the general practice context.

A major challenge in the Australian context is the lack of access for practice nurses access to peer reviewed journals that present research findings. Whilst acute and community based nurses often have access to electronic library databases via their employing state/ territory government, the cost of such subscriptions is often seen as prohibitive in the small business model of Australian general practice (Halcomb et al 2005). As this investigation demonstrates, although most participants had computer and internet access, very few had access to professional libraries and peer reviewed literature. Issues with access to research evidence are an important barrier to the uptake and utilisation of such evidence in clinical practice (Brown et al 2009; Rycroft-Malone et al 2004).

Implications for Practice

The lack of engagement in evidence based practice is not only an issue for nurses in general practice. However, the narrow focus of priority areas and difficulties in accessing evidence seen in this study are predominately related to their employment in the small business environment of general practice. Difficulties in accessing the peer reviewed literature significantly impacts upon the ability of practice nurses to use research findings to inform their practice. Before increases in the uptake of evidence can truly be achieved, strategies need to be implemented to support the development of the practice nurses skills in critically appraising research and effectively translating these findings into clinical practice. This is particularly important given that Australian practice nurses have predominately received their pre-registration education via the hospital system, where limited, if any, emphasis was placed on research (Halcomb et al 2008).

This need for the development of a culture of evidence based practice within Australian general practice nurses highlights the potential for productive collaborations between academia and clinicians. Such partnerships could not only increase the research skills of clinicians but also ensure the clinical relevance of research conducted by academics. From this investigation it is clear that further well designed research is needed that focuses on providing evidence for nursing interventions in terms of health outcomes, cost effectiveness and patient satisfaction. Additionally, further investigation of the general practice team and the effect of truly multidisciplinary service delivery require further attention.

In improving the quality of primary care delivered by practice nurses it is also possible to enhance the status of the profession and improve the retention of practice nurses. The release of Australia's first primary care strategy (Commonwealth of Australia 2008), although still under discussion, provides an emerging framework for nurses to think about how they can contribute to national primary care reform.

CONCLUSIONS

This study set out to identify the research priority areas of Australian practice nurses in an environment where practice nurses are generally isolated and work within a model of small business. The identified research priority areas all related to disease prevention, health promotion, the practice nurse role, professional development and general practice service delivery. Many of these issues reflected current roles and disease states that are privileged by contemporary funding models. In order to promote development of the practice nurse role it is vital that attention be given to generating high quality evidence to support and facilitate role development as understanding and access to evidenced based practice should be an integral part of the practice nurses' role. This means not only investigating the efficacy of what we are doing now, but also exploring where it is that practice nurses want their specialty to go in the future.

REFERENCES

Annells, A., DeRoche, M., Koch, T., Lewin, G. and Lucke, J. 2005. A Delphi study of district nursing research priorities in Australia. *Applied Nursing Research*, 18(1):36-43.

Bäck-Pettersson, S., Hermansson, E., Sernert, N. and Bjorkelund, C. 2008. Research priorities in nursing - a Delphi study among Swedish nurses. *Journal of Clinical Nursing*, 17(16):2221-2231.

Bell, P.F., Daly, J. and Chang, E. 1997. A study of the educational and research priorities of registered nurses in rural Australia. *Journal of Advanced Nursing,* 25(4):794-800.

Bertulis, R. 2008. Barriers to accessing evidence-based information. *Nursing Standard,* 22(36):35-39.

Brown, C.E., Wickline, M.A., Ecoff, L. and Glaser, D. 2009. Nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical centre. *Journal of Advanced Nursing,* 65(2):371-381.

Chang, E. and Daly, D. 1998. Priority areas for clinical research in palliative care nursing. *International Journal of Nursing Practice,* 4(4):247-53.

Cheek, J., Price, K., Dawson, A., Mott, K., Beilby, J. and Wilkinson, D. 2002. Consumer perceptions of nursing and nurses in general practice. Adelaide, South Australia: Centre for Research into Nursing and Health Care, University of South Australia.

Cohen, M. Z., Harle, M., Woll, A.M., Despa, S. and Munsell, M.F. 2004. Delphi Survey of Nursing Research Priorities. *Oncology Nursing Forum*, 31(5):1011-1018.

Commonwealth of Australia. 2008. Towards a national Primary Health Care Strategy: A discussion paper from the Australian Government. edited by DoHA. Canberra: Commonwealth of Australia.

Council of Deans of Nursing and Midwifery (Australia and New Zealand). 2004. Position paper: Practice nurses 2004 [cited May 25 2005]. Available from www.cdnm.edu.au/pdfs/ Practicenursepositionpaper.pdf.

Halcomb, E.J., Davidson, P.M., Daly, D., Yallop, J. and Tofler, G. 2004. Australian nurses in general practice based heart failure management: Implications for innovative collaborative practice. *European Journal of Cardiovascular Nursing,* 3(2):135-147.

Halcomb, E.J., Davidson, P., Daly, J., Yallop, J. and Tofler, G. 2005. Nursing in Australian general practice: Directions and perspectives. *Australian Health Review,* 29(2):156-66.

Halcomb, E.J. and Davidson, P.M. 2006. Is verbatim transcription of interview data always necessary? *Applied Nursing Research,* 19(1):38-42.

Halcomb, E.J., Davidson, P.M., Salamonson, Y. and Ollerton, R. 2008. Nurses in Australian general practice: Implications for chronic disease management. *Journal of Nursing and Healthcare of Chronic Illness, in association with Journal of Clinical Nursing*, 17(5A):6-15.

Hegney, D., Buikstra, E., Fallon, T., Martin-McDonald, K., Patterson, E. and Rees, S. 2004. Consumer perceptions of practice nursing. Toowoomba, Queensland: University of Southern Queensland.

Hegney, D., Price, K., Patterson, E.A., Martin-McDonald, K. and Rees, S. 2004. Australian consumers' expectations for expanded nursing roles in general practice. *Australian Family Physician,* 33(10):845-8.

Meadley, L., Conway, J. and McMillan, M. 2004. Education and training needs of nurses in general practice. *Australian Journal of Primary Health*, 10(1):21-7.

Mills, J. and Fitzgerald, M. 2008. The changing role of practice nurses in Australia: an action research study. *Australian Journal of Advanced Nursing,* 26(1):16-20.

Patterson, E.A., Del Mar, C. and Najman, J. 1999. A descriptive study of nurses employed by general practitioners in South-east Queensland. *Australian Journal of Advanced Nursing*, 17(2):13-20.

Patterson, E.A., Del Mar, C. and Najman, J. 1999. Nursing's contribution to general practice: General practitioners' and practice nurses views*. Collegian*, 6(4):33-9.

Patterson, E.A. and McMurray, A. 2003. Collaborative practice between registered nurses and medical practitioners in Australian general practice: Moving from rhetoric to reality. *Australian Journal of Advanced Nursing,* 20(4):43-8.

Pilotto, L., Smith, B.J., Heard, A.R., McElroy, H.J., Weekley, J. and Bennett, P. 2004. Trial of nurse-run asthma clinics based in general practice versus usual medical care. *Respirology*, 9(3):356-62.

Powell, C. 2003. The Delphi technique: Myths and realities. *Journal of Advanced Nursing*, 41(4):376-82.

Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B. and Titchen, A. 2004. An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing*, 13(8):913-924.

Senior, E. 2008. How general practice nurses view their expanding role. *Australian Journal of Advanced Nursing,* 26(1):8-15.

Tagney, J. and Haines, C. 2009. Using evidence-based practice to address gaps in nursing knowledge. *British Journal of Nursing,* 18(8):484-489.

Watts, I., Foley, E., Hutchinson, R., Pascoe, T., Whitecross, L. and Snowdon, T. 2004. General practice nursing in Australia. Canberra, ACT: Royal Australian College of General Practitioners and Royal College of Nursing, Australia.

Wortman, P M., Smyth, J.M., Langenbrunner, J.C. and Yeaton, W.H. 1998. Consensus among experts and research synthesis. A comparison of methods. *International Journal of Technology Assessment in Health Care,* 14(1):109-122.

Living with type 2 diabetes: 'Putting the person in the pilots' seat'

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KEY WORDS

Type 2 diabetes, Self-management, Primary Health Care, Control.

ABSTRACT

Objective
To better understand the day-to-day lived experiences of those adults with type 2 diabetes, in particular, their historical and current ability to self manage this condition.

Design
This qualitative study utilised aspects of both phenomenology and grounded theory to inform the study design, namely an iterative thematic content data collection and analysis process. This enabled the identification of emerging themes.

Setting
Sample subjects all resided in Whanganui, New Zealand and were interviewed either in their own home, workplace or in a private room at the Whanganui Regional Primary Health Organisation.

Subjects
Nine in depth interviews were conducted with a purposively selected sample of adults living with type 2 diabetes; five females and four males; four New Zealand Europeans, four Māori and one Samoan. Years since diagnosis ranged from one to twenty three.

Results
The results demonstrate similarities between this research and that conducted internationally in terms of the impact of the diagnosis of type 2 diabetes and the difficulties adopting and adapting to the complex self care tasks required to manage this chronic condition on a daily basis. Support to self manage in this study was harnessed more readily from spiritual beliefs, family and friends rather than from health professionals.

Conclusion
Development of a sense of ownership or control of the condition is paramount to enable people to self manage effectively on a day to day basis and is determined primarily by the individual's personal support systems. The primary focus of care should therefore be on the 'person', their story, needs and support systems, including the provision of health services and educational programs, well versed with and reflective of the broad principles of self management in a multi cultural environment.

INTRODUCTION

Chronic conditions are an increasingly major burden and a challenge to health care systems due to ageing populations, food consumption patterns and changes in lifestyle behaviours (Horsburgh et al 2007). Worldwide the number of people with diabetes is increasing and a similar trend is occurring locally with prevalence projections indicating that by the year 2021, there will be 380,000 people with diabetes in New Zealand (MOH 2006). Type 2 diabetes is the more common of the two main types as it affects 85%-90% of all those diagnosed (NZGG 2003). This type may also be under reported as it is commonly undiagnosed until the disease process is well advanced, as it is often asymptomatic in the earlier stages.

The incidence and prevalence of diabetes is further exacerbated by demographic and socio cultural factors such that, those in minority ethnic groups, namely Māori and Pacific Island people, are more at risk of diabetes but receive differential treatment from current health services leading to increased rates of complications and mortality (Joshy and Simmons 2007; MOH 2001; Simmons et al 1998). The New Zealand Primary Health Care Strategy (PHCS) was launched in 2001 partly in response to these inequalities and a growing concern that the overall health status of New Zealander's was "slipping behind other developed countries" (MOH 2000, p. 3). A strengthened primary health care sector was considered by politicians and health policy analysts a requirement to facilitate improved chronic care health outcomes.

As part of restructuring health systems, models such as the Expanded Chronic Conditions Model (ECCM) (Barr et al 2003) suggest that a broad approach to the management of chronic conditions is required, where there is increased focus on community participation, integration of health care providers, and inter sectoral activity, with the person and their family placed at the centre. Inherent to the overall success of the ECCM is the concept of self management.

Self management is defined as "the individual's ability to manage the symptoms, treatment, physical and psychosocial consequences and lifestyle changes inherent in living with a chronic condition" (Newman et al 2004, p. 1523). It is assumed that this broad concept of self management is well understood and widely practiced by both patients and health practitioners as it is perceived to be the mainstay of chronic care management (Holman and Lorig 2004). However, there are wide variations in the abilities of individuals to self manage their condition effectively. There can also be reluctance on the part of some health professionals to acknowledge that 'their' patient actually knows their own condition quite well and can manage it on a daily basis with minimal assistance (Cheek and Oster 2002). Viewing the ongoing care in terms of a 'partnership' can be a new challenge. A 'role reversal' is required for effective self management so that the patients become the experts and the provider the mentor (Ellison and Rayman 1998).

A component of self management is learning about and adopting the lifestyle interventions in relation to dietary habits and exercise; considered essential to prevent or minimise complications (NZGG 2003). These interventions are often the most difficult aspects to adhere to or comply with (Nagelkerk et al 2006). Negative emotions such as anger, shame, guilt and denial can impact on this process (Rapaport et al 2000). Therefore an increased focus needs to be placed on the psychosocial issues related to living with the condition in order to improve the health and quality of life for people with diabetes (Skoveland 2004).

Several authors have highlighted the staged approach to self management, in particular adapting to and managing to gain control or 'mastery' over diabetes. This can start with the initial reactions by patients at the time of diagnosis and the successful early acquisition of knowledge about diabetes and self care. Following on, it is necessary to 'become engaged' and to develop strategies to become an 'expert'. Finally, for some, a state of 'integration' or

sense of balance is reached which allows acceptance of self as a person with diabetes (Koch et al 2004; Whittemore et al 2002; Ellison and Rayman 1998; Paterson et al 1998). Support to do so is sought from a variety of avenues such as family and friends, health services, educational programs, spirituality and consumer support groups.

Little is known about the success or otherwise of patients with type 2 diabetes in gaining such 'mastery' and 'integration' in current New Zealand primary care settings. This study aimed to explore individual patients' experience of such processes, from and around the time of diagnosis and over subsequent months or years.

METHOD/METHODOLOGY

This qualitative study combined aspects of both grounded theory and phenomenological approaches to explore the experiences of the resultant nine participants living with type 2 diabetes in Whanganui, New Zealand.

Both phenomenological and grounded theory methodologies share a common focus on the "richness of human experience, seeking to understand a situation from the subject's own frame of reference and use flexible data collection procedures" (Baker et al 1992, p. 1355). However, as these two methodologies have developed from different 'intellectual roots' in philosophy and sociology, their research strategies are different. Aspects from both approaches, rather than a separate or fully integrated approach have been used in this research. Phenomenology aims to learn and construct "the [objective] meaning of a human experience through intense dialogue with the persons who are living the experience" (Beanland et al 1999, p. 245). The intent here however, was to investigate 'through intense dialogue', but not critique, the subjective experiences of people living with type 2 diabetes whilst also wishing to investigate the social processes for these same participants. Thus some aspects of the grounded theory methods were used to analyse the data in order to develop themes from the dialogue, followed by a content analysis approach to identify the emerging themes (Boyatzis 1998).

A purposive, or a non probability sampling strategy, (Beanland et al 1999) was used to select participants because they were considered to be typical of the study population group and deemed 'information rich' for the purposes of the study (Sandelowski 2000). The proposed sample consisted of adults between the ages of thirty and sixty who had been diagnosed with type 2 diabetes for more than a year, and who had no dominant coexisting health issues. Consideration was given to ethnicity to ensure that the sample was broadly representative of the Whanganui diabetes population statistics. (In the Whanganui region, approx 20% of the population self identify as Māori, and 1% as Pacific Island people , with the majority identifying as NZ European). Furthermore, Māori and Pacific Island people with type 2 diabetes are over represented in the diabetic population within the age range specified for this study (47% Māori ; 4% Pacific Island people) (Rayner 2007).

In order to identify prospective participants, the research proposal was initially outlined at a monthly staff meeting to a broad group of primary health care practitioners aligned to the Whanganui Regional Primary Health Organisation (WRPHO). These practitioners explained the project to prospective patient participants, using a written information sheet to explain the project during their initial discussions with them. Every effort was made to ensure that prospective participants were invited to participate without coercion, and were reassured that the clinical care they received would not be compromised if they did not agree to participate. Once prospective participants had been identified by primary care providers, the interviewer researcher (JH) then contacted the potential participant by phone, checked their agreement to participate and if appropriate, arranged an interview time at a place and time suitable to the participant.

At the time of the interview, written consent for the interview process was obtained, and all participants readily agreed to audio recording of the interviews. Prior to the start of each interview, which ranged in duration from approximately 45 minutes to just over one hour. Participants were thanked for their participation and given a 'koha' ($20 petrol voucher)

(a small gift of appreciation which is common cultural practice for both Māori and Pacific Island people and considered appropriate for culturally safe research).

This process respected the concept of cultural safety that acknowledges the diversity in worldviews which exist both within and among different cultures including those grouped by gender, social, religion and ethnicity (Nursing Council of New Zealand 2005). Cultural safety was guided by one of the researchers, who is an indigenous researcher and director of a Māori research centre in Whanganui. Cultural advice was also sought from the WRPHO employed Pasifika and the Māori High Needs nurses. In addition, both the Whanganui based Pasifika Forum group and the Whanganui Region Māori health representatives were consulted about the study prior to commencement.

All interviews were conducted by one of the authors (JH), using a semi structured interview technique, interwoven with an iterative analytic process. Data saturation, where themes occurred and recurred, was reached after nine interviews had been conducted. The data were transcribed by a professional transcriber. Anonymised transcripts were reviewed by all three researchers, and themes generated by the analysis checked and rechecked.

A summary of the emergent themes was produced and sent to all participants for validation, an accepted method of member checking (Mays and Pope 1995) for data corroboration. Participants were asked to reply if they wished or disagreed with the summary of these findings; non response was taken as tacit agreement. In the event two interviewees replied and had no disagreement with the suggested themes.

Ethics approval for this research was granted by the Central Regional Ethics Committee (Ministry of Health, Wellington).

FINDINGS

Participants
The nine participants included four New Zealand Europeans, four Māori and one Pacific Island person (Samoan). Five were females and four were males with an age range of forty three to seventy nine years. Time since diagnosis ranged from one to twenty three years. All, bar one participant who required daily insulin, used oral diabetes medication and dietary measures to maintain glycemic control.

Themes
Seven data categories were developed from the data and subsequently evolved to become three themes: 'loss of control', 'gaining control' and 'being in and staying in control'.

Loss of control
The first theme, 'loss of control' encompassed the time of diagnosis when alongside the physical symptoms of diabetes there are also the emotional factors which together impact on the person's state of equilibrium. All of the participants vividly recalled the events surrounding the diagnosis and reported experiencing a range of reactions from denial, shock, fear, and anger:

I was afraid and I thought oh, better I go and kill myself (Interview 7: 71 year old, Pacific Island male),

and relief;

…it was probably a relief, if you like, to find out there was something. You think oh I might be losing my mind (Interview 4: 48 year old Pakeha female).

Some of the predisposing factors which contribute to the development of diabetes such as age and family background, were also beyond the control of some participants:

I fit the category because I'm forty, I'm Māori, a prime candidate and I was very overweight (Interview 1: 51 year old, Māori female).

Gaining control
The process of 'gaining control' through adoption of lifestyle changes is required to manage this newly imposed complex condition which can be challenging and time consuming. Sometimes everything goes well, but there are also times when it is just hard work and barriers and tensions result in limited progress (Cheek and Oster 2002; Polonsky 1999). These difficulties were reiterated by most of the

participants in this study and are compounded by the realisation that the rewards for modifying lifestyle habits are not evident or tangible enough in the short term. Thus, as the reasons for embracing the complex management tasks and lifestyle changes wholeheartedly are not evident, there is often little motivation for some to do so:

It takes work. Its actually work. And you don't get paid for it. Your body is kind of undemanding until it breaks down I think, isn't it? You kind of think well I don't feel that bad so therefore I can carry on. But I know I can't.

The same participant said:

You don't feel unwell. If I felt unwell that would motivate me (Interview 2: 43 year old, Pakeha female).

Some also spoke of the temptations they faced:

It's actually harder than I thought it would be…as soon as I see people eating what I shouldn't be eating. ….I just go gorge myself (Interview 9: 48 year old Māori male).

Being in and staying in control

The third theme, 'being in and staying in control' reflects the development of a sense of empowerment and integration or acceptance of diabetes, which was enhanced for the Māori and Pacific participants by their spiritual beliefs and visions:

A man without a vision is just going to walk around the mountain all the time…a man with a vision will climb the mountain (Interview 8: 43 year old Māori female).

Despite the progression of diabetes complications and difficulties regaining glycaemic control through medication changes, there was a sense that these setbacks were expected and that due to the prior development of skills, knowledge, confidence and support, balance could once again be achieved:

Its really up to me. And nobody can do it for me. So you plod along (Interview 3: 56 year old, Pakeha female).

DISCUSSION

This exploration of patients' experiences of being diagnosed with, and subsequently living with, a chronic condition such as diabetes, has identified three predominant themes: loss of control; gaining control and being in and staying in control. This concept of control predominated and infiltrated all of the categories, from the predisposing factors leading to the diagnosis, the struggle to adapt to the daily management regimes required, through to the ability of the individual to achieve a balance between living with a progressive chronic condition and living a 'normal' life. The word 'control' occurred and was recurrent in nearly all of the interviews, perhaps reflecting an underlying wish or need to control their condition which the interviewees may or may not be fully aware of.

The data reinforces the notion that not only is the time of diagnosis a major event in the lives of most individuals and their families, but that subsequent management and mastery is also complex and affected by multiple factors. Participants in this study spoke about the time of diagnosis as being traumatic and life changing. Tailored support and information at this time is thus imperative to enhance the ability of individuals and their families to come to terms with the diagnosis, to gain a basic understanding of the condition, to debunk the myths and to clarify treatment regimes. All are key components to enhance the adoption of new behaviours necessary to start the 'diabetes journey' (Caccioppoli and Cullen 2005; Peel et al 2004; Cheek and Oster 2002). The participants in this study were unable to identify or remember being offered or gaining access to this type of comprehensive support at the time of diagnosis.

While all participants had had some initial contact with a dietician and diabetes nurse, the content of the information relayed appeared to be 'disease and task specific' rather than a broader self management learning experience. Clarke and Goosen (2005) found that merely providing information about the condition

and its seriousness is highly unlikely to result in enhanced adherence to treatments. Participants in this study had either ignored the advice, modified it to suit their lifestyles or had attempted to be more vigilant with regards to some but not all aspects. These episodes of inconsistency with the recommended regimes reflect the difficulties of adjusting to the complexities of the required tasks, as well as limited knowledge. The consequences of non adherence are exhibited both in terms of clinical and psychological outcomes, the latter, often in the form of guilt, anxiety and frustration as was reflected by some participants in this study.

Alternatively, a comprehensive approach from the outset which embraces the concept of self management, whereby the person and their family play a central role, monitor symptoms, make informed decisions, and adhere to treatment regimes developed in partnership with key health professionals is believed to be more effective (Bycroft and Tracey 2006). To enhance this process monitoring tools, behaviour change techniques, health and wellness plans alongside disease specific and empowerment education, are considered to be key components for successful self management (Tracey and Bramley 2003).

The results from this study suggest the health services experienced by the participants are challenged by the task of providing comprehensive and outcome based self management support and care. Most participants had very limited contact with their general practice team (similar to Pooley et al's findings 2001) and the opportunity to address more than the obvious clinical issues could be seen to be yet another challenge within the current primary care practice environment (Pooley et al 2001).

Perhaps in lieu of health professional support, most participants had instead harnessed family and friends, as well as cultural and spiritual beliefs to provide the impetus needed to gain some control of their lives and ownership of the condition; such that a state of integration for some was achieved. However, as the condition progresses, this measure of control is constantly being challenged and those

best prepared to adapt to this are those who have developed a higher degree of self management ability acquired through enhanced social support systems and inner resources.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

This study, drawing on the experiences of a selected sample of people living with type 2 diabetes, highlighted a number of concerns regarding primary health care services in Whanganui, New Zealand.

Primary health care services accessed by the participants were not maximising opportunities to work with patients and families to assist patients to manage their condition or as the participants stated to help them 'stay in control'. Limited support at the time of diagnosis, limited recognition of the need for truly patient centred planning, limited utilisation of evidence based tools to facilitate and support behaviour change were all barriers to enabling patient self management. As a result some patients were not able to sustain the changes required to 'stay in control'.

These findings have considerable implications for practice. Health care teams need to be well organised, and expertise in self management support urgently developed. Developing the roles and responsibilities of the whole health team and especially that of the nurse should be considered paramount to achieve successful implementation of self management practices, along with recognition of the individual diversity and contextual factors impacting on each person.

Key to the ultimate success however, is not only the implementation of these processes but the abilities of those 'on the ground' to respond to and understand the reality and the abilities of those living with this chronic condition. This understanding will better assist people with diabetes to engage, to gain control and to remain engaged, to develop a sense of personal balance and to stay in control. Putting these people and their families at the centre of their health care team, surrounded by broader systems and processes which enhance the management of

chronic conditions, is essential to achieve better health outcomes.

LIMITATIONS

These results pertain solely to the data collected during the interview sessions as the researcher (JH) had no access to the clinical data relating to these nine participants and no additional tests or scores were undertaken alongside the interviews to provide corroborative evidence. Thus the participants' honesty is not questioned and their responses are based on their understanding and experiences. In addition, as this was a qualitative study with a small number of participants, these findings are not necessarily generalisable throughout the diabetes population.

Although all of the interviews were conducted by one researcher (JH); herself a health professional (experienced primary health care nurse), this allowed for good inter interview reliability, and enabled an ongoing iterative process to develop over the course of the data collection.

REFERENCES

Baker, C., Wuest, J., and Noerager Stern, P. 1992. Method slurring: The grounded theory/phenomenology example. *Journal of Advanced Nursing,* 17(11):1355-1360.

Barr, V., Robinson, S., Marin-Link, B., Underhill, L., Dotts, A., Ravensdale, D., and Salivaras, S. 2003. The expanded chronic care model: An integration of concepts and strategies from population health promotion and the chronic care model. *Hospital Quarterly, 7*(1):73-82.

Beanland, C., Schneider, Z., LoBiondo-Wood, G., and Haber, J. 1999. *Nursing Research: Methods, critical appraisal and utilisation* (1st Australian ed.). St Louis: Mosby.

Boyatzis, R. 1998. *Transforming qualitative information: Thematic analysis and code development*. London: Sage.

Bycroft, J., and Tracey, J. 2006. Self-management support: A win-win solution for the 21st century. *New Zealand Family Physician 33*(4):243-248.

Caccioppoli, P., and Cullen, R. 2005. *Māori health*. Auckland: Kotahitanga Community Trust.

Cheek, J., and Oster, C. 2002. *A qualitative investigation of the experiences, perceptions and understandings of people with a chronic condition*. Adelaide: South Australian Department of Human Sciences.

Clarke, D., and Goosen, T. 2005. Depression and compliance with treatment in a sample of Northland diabetes patients [Electronic Version]. *New Zealand Medical Journal, 118*(1222).

Ellison, G., and Rayman, K. 1998. 'Exemplars' experience of self-managing Type 2 diabetes. *The Diabetes Educator, 24*(3):325-330.

Holman, H., and Lorig, K. 2004. *Patient self-management; A key to effectiveness and efficiency in care of chronic disease* (Public Health Reports). California, USA: Association of Schools of Public Health.

Horsburgh, M., Goodyear-Smith, F., and Yallop, J. 2007. *An approach to risk reduction and risk managment for cardiovascular disease and Type 2 diabetes with nurse leadership in primary health care*. Auckland: University of Auckland.

Joshy, G., Lawrenson, R., and Simmons, D. 2007. Retention of patients in the "Get Checked" free annual diabetes review program in Waikato, New Zealand [Electronic Version]. *New Zealand Medical Journal, 120*(1266).

Koch, T., Jenkin, P., and Kralik, D. 2004. Chronic illness self-management: Locating the 'self'. *Journal of Advanced Nursing, 48*(5):484-492.

Mays, N., and Pope, C. 1995. Rigour and qualitative research. *British Medical Journal, 311*(6997):109-112.

Ministry of Health. 2000. *The New Zealand health and disability strategy*. Wellington: Author.

Ministry of Health. 2001. *The primary health care strategy*. Wellington: Author.

Ministry of Health. 2006. *Implementing the New Zealand health strategy. The ministers sixth report on progress on the New Zealand health strategy*. Wellington: Author.

Nagelkerk, J., Reick, K., and Meengs, L. 2006. Perceived barriers and effective strategies to diabetes self- management. *Journal of Advanced Nursing, 54*(2):151-158.

New Zealand Guidelines Group. 2003. *Management of Type 2 diabetes*. Wellington: Ministry of Health.

Newman, S., Steed, L., and Mulligan, K. 2004. Self-management interventions for chronic illness. *The Lancet, 364*(9444):1523-1537.

Nursing Council of New Zealand. 2005. Guidelines for cultural safety, the Treaty of Waitangi and Māori health in nursing education and practice. Wellington. Author

Paterson, B., Thorne, S., and Dewis, M. 1998. Adapting to and managing diabetes. *The Journal of Nursing Scholarship, 30*(1):57-62.

Peel, E., Parry, O., Douglas, M., and Lawton, J. 2004. Diagnosis of Type 2 diabetes: A qualitative analysis of patients emotional reactions and views about information provision. *Patient Education and Counselling, 53(3):*269- 275.

Pooley, C., Gerrard, C., Hollis, S., Morton, S., and Astbury, J. 2001. 'Oh its a wonderful practice...you can talk to them': A qualitative study of patients' and health professionals' views on the management of Type 2 diabetes *Health and Social Care in the Community, 9*(5):318-326.

Polonsky, W. 1999. *Diabetes Burnout. What to do when you can't take it anymore*. Virginia: American Diabetes Association.

Rapaport, W., Cohen, R., and Riddle, M. 2000. Diabetes through the lifespan: Psychological ramifications for patients and professionals. *Diabetes Spectrum, 13*(4):201-210.

Rayner, M. 2007. Personal communication from Whanganui Diabetes Services data. Whanganui. New Zealand.

Sandelowski, M. 2000. Focus on research methods. Whatever happened to qualitative description? *Research in Nursing and Health, 23(4):*334-340.

Simmons, D., Weblemoe, T., Voyle, J., Prichard, A., Leakehe, I., and Gatland, B. 1998. Personal barriers to diabetes care: Lessons from a multi-ethnic community in New Zealand. *Diabetic Medicine, 15*(11):958-964.

Skoveland, S. 2004. Diabetes attitudes, wishes and needs. *Diabetes Voice, 49*:4-11.

Smart, and Bates. 1972. *The Wanganui Story*. Wanganui: Wanganui Newspapers Ltd.

Tracey, J., and Bramley, D. 2003. The acceptability of chronic disease management programmes to patients, general practitioners and practice nurses. *New Zealand Medical Journal* Retrieved 20th May 2005, from http://www.nzma.org.nz/journal/116-1169/331/

Whittemore, R., Chase, S., Mandle, C., and Roy, C. 2002. Lifestyle change in Type 2 diabetes: A process model. *Nursing Research, 51*(1):18-25.

The relevance of psychosocial indicators in community palliative care: A pilot study

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ABSTRACT

Objective
The objective is to discuss a framework in psychosocial
care in community palliative care and the outcomes
of a pilot study. This study adds to the existing body of
knowledge in palliative care especially in psychosocial
aspects of community care.

Design and Setting
Prior to pilot testing the psychosocial indicators for use
in community palliative care, a twelve item framework
in psychosocial care was developed and validated
using the Delphi technique and group consensus from
ten experts in community palliative care. The study
setting was the community palliative care services
consisting of multidisciplinary health professionals.

Subjects
A purposive sample of six participants comprising of
palliative care nurses and allied health professionals
participated in the pilot study. Using the psychosocial
framework in community palliative care participant
views on what constitutes psychosocial care in
community palliative care was determined. Interview
transcripts were the data sources that informed the
pilot study.

Main outcome measure
The main outcome was the pilot study results
validating the psychosocial framework consisting
of 12 indicators in community palliative care. The
study findings demonstrate the appropriateness
of psychosocial indicators discerning patient and
caregiver needs in community palliative care. All
participants in the pilot study independently confirmed
evidence of the 12 psychosocial indicators in their
practice.

Conclusion
The pilot study shows that by incorporating
psychosocial care in community palliative care
improves decision making in the terminally ill. The
implication for practice is that psychosocial aspects
of palliative care can indicate patient's care needs
leading to better satisfaction.

INTRODUCTION

This paper reports the outcomes of a pilot study undertaken to establish the relevance of a framework in psychosocial care in community palliative care. Rapid improvements in health and longevity are recognised as dramatically changing the burden of illness throughout the world. In developed countries changes in life style and improvements in the treatment of major causes of morbidity have aged the population and increased the prevalence of chronic diseases (Higgins 1999).

The ageing of the Australian population will continue into the future with the proportion of people aged 65 years and over projected to increase between 26% and 28% of Australia's population by 2051 (Australian Government Department of Health and Ageing 2000). The proportion of younger people is projected to decrease from 20% in 2004 to between 13% and 16% by 2051. These population projections are similar to other western countries. Both the United States of America (USA) and the United Kingdom for example, project a doubling of their populations over 65 year olds by 2050.

The ageing population in Australia will affect Australian economic social systems (Australian Bureau of Statistics 2006). This change will of course include the health sector, although at present there seems to be no consensus as to the extent to which the health sector will be affected (Richardson and Robertson 1999).

The National Health Priority Areas have identified health areas in Australia through a combined government effort, which contributes significantly to the burden of illness and injury. The current priorities cover chronic disease which includes the top 10 causes of disease burden in Australia. These are arthritis and musculoskeletal conditions, asthma, cancer, cardiovascular health and diabetes mellitus (National Health Priorities Area 2005).

A study of hospital costs in New South Wales for older people in the last years of life (Kardamanidis et al 2007) found that the number of days spent in hospital and inpatient costs increased sharply in the

three months before death. The study confirmed that a major part of the end of life morbidity burden was carried shortly before death. The study concluded that, 'population ageing is likely to result in a shift of the economic burden of end-of-life care from the hospital sector to the long-term care sector, with consequences for the supply, organisation and funding of both sectors' (Kardamanidis et al 2007).

End-of-life care is a social, economic, and political problem (Friedenberg 2003). Our health system is still generally focused on dealing with crises and health problems through short and poorly integrated or coordinated interventions. This approach is hospital and illness oriented rather than individual or community oriented. With the increase in chronic illness and its associated incidental needs for high levels of care and unpredictable disease projections, death or recovery is no longer easy to predict. Patients with chronic illnesses go through cycles of hospitalisation, followed by home care and eventually into palliative care (Brumley et al 2003).

MULTIDISCIPLINARY COMMUNITY PALLIATIVE CARE

Inherent in a multidisciplinary palliative health care team approach is a team that embraces principles of holistic care, with its inclusion of all types of psychosocial care as well as physical care (Palliative Care Australia 2003; 2005b). The unit of care is the whole person, both the patient and significant others, with the quality of life being the goal (Edith Cowan University et al 2004). Multidisciplinary teams involved with palliative care include medical, nursing and allied health professionals (including social workers) as well as other providers such as chaplains and pastoral care workers. Team work across disciplines is essential in palliative care and good teams can accomplish more than the sum of their individual contributions (Crawford and Price 2003).

Much of the literature reviewed has been based on the premise that health costs in the future will be unsustainable as the population ages. By their very

nature chronic diseases are not cured completely and need to be managed. Chronic diseases remain in a person's life and this affects the quality of life. In the USA health spending figures are expected to rise from current expenditure by 15% in 2010 to 60% by 2050 compared with current levels mainly due to the increasing prevalence and cost of chronic disease (Glasgow Orleans and Wagner 2001). The authors make the point that much of this cost due to the ageing population could be saved through the effective prevention and management of chronic diseases in the community. There is evidence that older people use hospital in-patient services more and use more health services generally. Increasing health costs in the USA are of great concern especially when access to health services and treatment is largely dependent on the ability to pay for medical insurance. In the USA, Collins et al (2006) found that an increasing number of people aged 50 to 64 years and older had high rates of chronic health conditions as well as inadequate medical insurance, all affecting their access to health care.

In Australia it was found that the rate of older Australians using the services of general practitioners was more than double that of younger people and those rates increased with age (Older Australians at a glance 2007). Hospital costs increase with age with Australians 65 years and over representing 35% of all hospital visits. Length of stay in hospitals also increased with age accounting for 48% of in hospital patient days for older people (p.115). Hospitals in general though are a major part of Australia's healthcare system accounting for over a third of recurrent health expenditure.

Figures in Australia show that hospital expenditure for the treatment of chronic diseases accounts for 48% of all expenditure in the National Health Priority Areas. Spending on acute or crisis care for chronic diseases is a major proportion of the expenditure on Australia's health. With an increase in the incidence of chronic health, this expenditure can only increase over time. Hospitalisation rates for people aged between 65 and 84 are double the rate for those aged between 25 and 64 years of age. For those

people over 85 the rate triples (Australia's Health 2008, p. 265). It is reported that the total allocated health expenditure increased five times for 25 - 64 years of age with costs rising sharply for older people over the ages of 64 (p. 412).

Although life limiting diseases and conditions occur across the generations and sexes, the increase of an ageing population does affect the use of medical care, services and facilities. Australian statistics show that for older Australians chronic diseases requiring varying periods of medical care and eventual end-of-life care that cause the greatest burden. The ageing population and increasing health care costs challenges the sustainability of existing models of care for chronic diseases and eventual end-of-life care in an era where more and more individuals wish to be cared for in the community by their loved ones. Research is needed to investigate quality indicators in psychosocial care within the community context, in particular because inherent in community palliative care is psychosocial care and there is a need to determine the notion of 'quality' from the perspective of palliative care professionals as has been proposed in this study.

The literature shows that end-of-life patients' preference is to die at home. Higginson and Sen-Gupta (2000) in a systematic review of the literature found that between 49% and 100% of the respondents in various studies wanted a home death. The review showed that home care was the most common preference with inpatient hospice care as second. Community palliative care may become increasingly more relevant as the number of elderly people living with a serious chronic illness increases (Rabow et al 2004).

Current palliative care provision has grown out of the hospice movement of providing a place of hospitality at the end of life. In the USA palliative medicine as a specialty is not established to the same extent as in the United Kingdom and Australia (Kuebler et al 2005). 'Hospice at home' is a term often used for the provision of palliative care in a home setting. In the USA, the hospice model has been mainly a home based provision (Kuebler et al 2005). In Canada the

term 'hospice palliative care' is used to indicate, "… the convergence of hospice and palliative care into one movement that has the same principles and norms of practice" (Ferris 2002). Changes to the World Health Organisation definition of palliative care have produced changing views over the years, and developments both in Australia and elsewhere have been ad hoc (Bruera and Sweeney 2002, Currow and Nightingale 2003, London et al 2005).

The Gold Standards Framework for community palliative care was developed to assist consistent and high quality palliative care in the United Kingdom (King et al 2005, Munday et al 2007, Walshe et al 2008). The framework presents guidelines, mechanisms and assessment tools for community palliative care. It consists of a three step model of good practice for practitioners to identify their palliative care patients, assess their needs and plan care to support those needs. The framework centres on seven key areas that need to be addressed to provide good holistic care. They are: communication, coordination, control of symptoms, continuity, continued learning, carer support and care of the dying. While these seven key areas are important for good palliative care, the framework does not include those aspects of psychosocial care that are vital for holistic care. These aspects include counselling consistent with quality of life issues, advanced directive in palliative care, cultural, religious and spiritual support for patients and families, supporting the patients, and their families and caregivers through grief, loss and bereavement. The pilot study reported in this paper set out to validate the psychosocial indicators for use in community palliative care from the perspective of health professionals.

AIM

The aim of this research was to (1) determine indicators of psychosocial care in community palliative care that are accepted as the norm by health professionals; (2) identify gaps in perceptions related to indicators of psychosocial care from those health professionals whose practice currently involve community palliative care.

RESEARCH QUESTION

How important are the psychosocial indicators in articulating patient's needs in community palliative care?

METHOD

Two key aspects of the study are discussed under methods; the Delphi technique which preceded the validation of psychosocial indicators in community palliative care and the pilot testing of the psychosocial framework.

Delphi method was used in this study as a research tool to investigate the relevance of psychosocial indicators for use in community palliative care prior to the pilot study. Delphi was considered the most appropriate because this method allows identifying the most important issues of interest by soliciting qualified experts (Okoli and Pawlowski 2004; McKenna 1994; Williams and Webb 1994; Strauss and Zeigler 1975), specifically for determining indicators of psychosocial care in community palliative care. As a tool Delphi was useful in attaining expert independent thought in the gradual formation of expert opinion. A diversity of viewpoints was represented in the expert panel of 10 members made up of practitioners, organisations, academics and specialists in the field selected for the task. The panel while anonymous to each other was not anonymous to the researcher.

Following the interrogation of the literature, concepts in psychosocial care in community palliative care informed the first round of questions to the panel of experts. The first round of questions in the Delphi process to the expert panel was circulated by email and was framed as; in your opinion how important are the psychosocial care aspects in community palliative care for the practice of health professionals? Please consider the following concepts presented as representing psychosocial care in community palliative care. Do these concepts adequately represent a view of community palliative care as perceived by health professionals? What other concepts would you like to include in psychosocial aspects of community palliative care?

Included in the expert group were medical specialists, clinical nurses, palliative care coordinators, bereavement counsellors and hospital chaplains involved with palliative care patients and their families. Following this process, a second tool based on the experts' responses to the first tool was administered to the panel which required them to revise the list of concepts presented as holistic aspects of psychosocial care in community palliative care. In addition, they were asked to rank these according to importance and add or eliminate less important concepts from the list which resulted in a psychosocial framework being put forward. Next, the experts were required to revise their responses to the set of questions and answer other questions pertaining to the triggers (see appendix 1) supporting each of the 12 items.

The expert group's input in to the Delphi process was valuable in developing the interview tool on psychosocial indicators for use in community palliative care and these experts in palliative care communicated via email with the researcher. For example, symptom management was suggested to be included by one of the reference group members following the first round which was subsequently framed as comfort and enhancing quality of life through symptom management which gained the group's consensus. Following the second round advanced care directives issues in palliative care; supports patient, family and caregiver through grief, loss and bereavement; care support following death were included in psychosocial indicators which gained group consensus. The process was repeated once more to include three rounds whereby a consensus was reached by the expert panel on the psychosocial indicators in community palliative care, and the order in which these were ranked and used in the design of the health professional interview tool. Following is a response justifying the inclusion of the above from a hospital chaplain who participated in the Delphi process; we shouldn't rule out cultural, religious and spiritual support to the patient and the family although they may not ask about these matters directly. Comforting family members and caregiver

following death is a primary concern to me and I think all aspects of psychosocial care we have agreed upon are important, our mandate is to provide holistic care in psychosocial community palliative care and I wouldn't rule out anything from this list.

The purpose of the health professional interview tool was to develop a framework consisting of indicators in psychosocial aspects of community palliative care deemed useful in articulating psychosocial care. The expert panel was asked to validate the researchers' interpretation and categorisation of these indicators. Because the expert panel is not anonymous to the researcher the process provided opportunity to follow up for clarification of the data which resulted in accepting the indicators as evident in psychosocial aspects of care in community palliative care.

These psychosocial indicators in community palliative care can assist in determining care that is accepted as the norm by health professionals in caring for palliative care patients and their families.

Purposive sampling was used to select the study participants and the criteria for participation were: exclusively working in community palliative care, in a multidisciplinary team, caring for patient and family (caregiver) at the time of study. Following institutional ethics approval six participants were chosen for the pilot study and in-depth interviews were conducted with them using the Psychosocial Indicators tool. The interview setting was the community palliative care services. The interviews were conducted during 2007 with the participants that lasted approximately 90 minutes with each individual. They were also asked to discuss any gaps in perceptions related to psychosocial care from their practice perspective. Each participant carefully reflected on their practice during the conversation with the researcher.

DATA AND ANALYSIS

A qualitative interpretive approach was used to analyse the data in the pilot study. The study sample consisted of six participants comprising of nurses and allied health professionals in community palliative care. Interview transcripts with the six participants comprise the study data.

The interviews were digitally recorded with the permission of participants which were later transcribed. The participants were given the opportunity to review the interview transcripts for accuracy. The data analysis process employed sequential conceptual steps and a pattern of analysis to identify and categorise the data (themes) by combining associated data and patterns into meaningful units according to the relatedness to the psychosocial framework. Following these processes sub-themes were identified and a determination was made as to how these related to patterns and themes in synthesising several small themes. For example, participants when considering question 9 (Appendix 1) reflected on symptoms including spiritual distress. The interview process allowed the researcher to probe as necessary for further information from the participants and allowed for the documentation of comments and or other points during interview enabling the researcher to make a judgment about the psychosocial care indicators in community palliative care. These indicators were considered necessary in determining care that was accepted as the norm by participants and by which actual attainments were judged.

Ultimately, a comprehensive view in formulating participants' perspectives confirmed the following psychosocial indicators.

1. Professional practice
2. Communicating with patient and caregiver/s on palliative care and end-of-life issues
3. Comfort and enhancing quality of life through symptom management
4. Effective counselling approaches consistent with quality of life issues
5. Ethical issues in palliative care
6. Advanced directive in palliative care
7. Cultural, religious and spiritual support for patient and family
8. Supporting patient, family and caregiver through grief, loss and bereavement
9. Care and support following death
10. Palliative care team support
11. Professional and personal development of palliative care team members
12. Evidence based practice in palliative care

The following interview extracts are presented to illustrate how some participants explored the relevance of psychosocial indicators to their practice. They were unanimous in their opinion that professional practice underpins psychosocial aspects of care in community palliative care. As one participant suggested; *I believe professional practice should be the beginning point when we talk about quality in psychosocial care. I would like to see all of these indicators used to determine psychosocial aspects of care as my practice is informed by all of them* (clinical nurse).

A medical practitioner suggested the following by stating; *I would suggest that symptom management is crucial as this is integral to psychosocial care because you can't separate the physical from the patient's psyche; it is the holistic aspects of care that results in quality psychosocial care*.

A bereavement counsellor who is also a social worker spoke of their experience in supporting the patient, family and the caregiver through grief, loss and bereavement. *We need to be mindful of the parameters of normal and abnormal grief and be prepared to refer the client to other resource people so that they get the best possible care. I think the list of triggers in the interview tool sums this up for me.*

There was overwhelming support from the small group of participants in the pilot study for the indicators of psychosocial aspects of care as determinants of community palliative care. As a palliative care coordinator who participated in the pilot study reflected; *the framework you have derived is highly relevant to our work and I believe that all 12 aspects of psychosocial care offer a framework for practitioners. I can't think of anything else to add to the list. I believe the triggers were useful in focusing on specific aspects during interview which ensured we did this in a systematic way by validating how we go about achieving these care indicators.*

DISCUSSION

The study findings confirm that the indicators of psychosocial aspects of care are important determinants of community palliative care. Data from the in-depth interviews conducted with the participants revealed that all 12 psychosocial indicators were evident in community palliative care practice. Moreover, the participants were able to relate to each of these indicators stating that these were representative of their practice. In their opinion, the12 psychosocial indicators inherent in their practice were accepted as the norm by the health professionals who participated in the pilot study. Interestingly, they did not describe any gaps in perceptions related to the psychosocial indicators from their practice. Consequently, no new psychosocial indicators emerged from the practice of six participants who participated in this study, which included a palliative care clinical nurse (RN), a palliative care coordinator (RN), social worker, bereavement counsellor, hospital chaplain and a medical practitioner.

Comparisons were made between the findings from the interview data generated on the 12 indicators from participants to determine congruence. The literature was interrogated against the data to validate psychosocial indicators in community palliative care (previously ratified by the expert group). The participants in the pilot study did not identify new indicators in psychosocial care that might be considered as important in their practice. When questioned about other possible areas that might be included in psychosocial care that might extend the 12 indicators they responded by stating these indicators inclusively illustrated their practice and they were unable to suggest otherwise. The end result was the confirmation of 12 indicators representing a psychosocial framework accepted as the norm by which actual attainments of care are judged by health professionals. The study findings demonstrate the appropriateness of psychosocial care in discerning community palliative care from health professionals' perspectives.

The Gold Standards Framework (2005) for community palliative care was developed to assist consistent and high quality palliative care in the United Kingdom based on seven key areas to be addressed to provide good holistic care. The pilot study reported herein goes beyond the seven key areas of the Gold Standards Framework. It is inclusive of other areas which address advanced directives, bereavement, and cultural, religious, spiritual support for patient and family, ethical issues in palliative care, care and support following death, and evidence based practice in palliative care. The study reported in this paper was borne out of the need to develop a comprehensive set of indicators that best represent the psychosocial aspects of community palliative care that might constitute holistic practice to which health professionals could relate.

Naturally, as a pilot study this research set out to identify psychosocial indicators of community palliative care from the perspective of a small group of participants. This preliminary work needs to be developed to incorporate a large sample as well as patient and carer opinions on the usefulness of psychosocial aspects in determining best practice from the end-user perspective. A major study is planned in collaboration with health services responsible for delivering community palliative care to enable research outcomes to translate into service delivery initiatives.

LIMITATIONS

The sample was necessarily small in the pilot study and the focus was limited to health professionals. There is a need for meaningful performance indicators in psychosocial aspects in community palliative care to be determined through best practice guidelines ensuring that services match patient's care needs. This can only be achieved through the involvement of end-users and health professionals in determining what constitutes best practice. This was not possible to achieve in a pilot study where the focus was limited to developing and trialling a framework to determine psychosocial indicators of community palliative care among nurses and allied health professionals.

CONCLUSION AND RECOMMENDATIONS

In summary, it is evident that the national palliative care strategy framework (2000) for service development is increasingly relevant to community palliative care involving multidisciplinary health professionals because of partnerships involved in planning and service delivery, and policy development which are essential for service coordination. Palliative Care Australia (2005) released a national policy document on palliative care service development calling for an adoption of a population based approach. This study is timely given the developments in the national palliative care strategy 2000 and 2005 planning and service delivery, and partnerships in policy development initiatives.

Importantly, the Palliative Care Australia submission to the Prime Minister's 2020 Summit (2008) called for meaningful performance indicators to ensure that services match patient's care needs by asserting that "to create a new and better reality for quality care at the end of life, health planning and financing must rank palliative care as a priority area for adequate funding, facilitate enhanced care services to support 'dying-in-place', and attach meaningful performance indicators to ensure that services match patients' care needs and, where possible, their care preferences".

In this paper the author has expressed a need for meaningful indicators in psychosocial aspects of care in community palliative care ensuring that services match patient's care needs. Further work is necessary to develop a model of best practice through the input of health professionals and end-users which has relevance and the likelihood to influence health and research policy in palliative care. A larger study is planned to be conducted involving health services, multidisciplinary health professionals, patients and their carers in the near future.

REFERENCES

Australia's Health, Australian Institute for Health and Welfare. 2008. Canberra, A.C.T.

Australian Institute for Health and Welfare (AIHW). 2007. Older Australians at a Glance, Cat. no. AGE, 52. Canberra, ACT: AIHW.

Australian Government Department of Health and Ageing. 2000. National palliative care strategy: a national framework for palliative care service development, Australian Government Department of Health and Ageing, Canberra.

Bruera, E. and Sweeney, C. 2002. Palliative Care Models: International Perspective. Journal of Palliative Medicine, 5(2):319-327.

Brumley, R. D., Enguidanos, S. and Cherin, D. A. 2003. Effectiveness of a Home-Based Palliative Care Program for End-of-Life, Journal of Palliative Medicine, 6(5):715-724.

Collins, S.R., Davis, K., Doty, M.M., Kriss, J.L. and Holmgren, A.L. 2006. Gaps in health insurance: an all-American problem - Findings from the Commonwealth Fund Biennial Health Insurance Survey.

Crawford, G.B. and Price, S.D. 2003. Team working: palliative care as a model of interdisciplinary practice. The Medical Journal of Australia, 179(6):32-34.

Currow, D.C. and Nightingale, E.M. 2003. A Planning Guide Developing a consensus document for palliative care service provision. The Medical Journal of Australia, 179(6 suppl):523-525.

Edith Cowan University, NPCP, and Australia Dept. of Health and Ageing. Guidelines for a palliative approach in residential aged care. Dept. of Health and Ageing, Canberra, 2004.

Ferris, F.D. 2002. A Model to Guide Hospice Palliative Care: Based on National Principles and Norms of Practice, Canadian Hospice Palliative Care Association.

Friedenberg, R.M. 2003. The End of Life 1, RSNA 309-312.

Glasgow, R.E., Orleans, C.T. and Wagner, W.H. 2001. Does the chronic care model serve also as a template for improving prevention? Milbank quarterl, 79(4):579-612.

Health of older people in Australia: a snapshot, 2004-05 Australian Bureau of Statistics, Canberra 2006.

Higginson, I.J. 1999. Evidence based palliative care. There is some evidence-and there needs to be more, BMJ, Aug 21;319(7208):462-3.

Higginson, I.J. and Sen-Gupta, G J.A. 2000. Place of Care in Advanced Cancer: A Qualitative Systematic Literature Review of Patient Preferences, Journal of Palliative Medicine, 3(3):287-300.

Kardamanidis, K., Lim, K., Da Cunha, C., Taylor, L.K. and Jorm, L.R. 2007. Hospital costs of older people in New South Wales in the last year of life, Medical Journal of Australia, 187(7):383.

King, N., Thomas, K., Martin, N., Bell, D. and Farrell, S. 2005. Now nobody falls through the net: practitioners' perspectives on the Gold Standards Framework for community palliative care. Palliative Medicine, 19(8):619.

Kuebler, K.K., Lynn, J. and Von Rohen, J. 2005. Perspectives in palliative care. Seminars in Oncology Nursing, 21(1):2-10.

Kuebler, K.K., Davis, M.P. and Moore, C.D. 2005. Palliative Practices: An Interdisciplinary Approach, Elsevier Mosby, St Louis.

London, M.R., McSkimming, S., Drew, N., Quinn, C. and Carney, B. 2005. Evaluation of a Comprehensive, Adaptable, Life-Affirming, Longitudinal (CALL) Palliative Care Project, Journal of Palliative Medicine, 8(6):1214-1225.

McKenna, H.P. 1994. The Delphi Technique: a worthwhile approach for nursing? Journal of Advanced Nursing, Jun;19(6):1221-5.

Munday, D., Mahmood, K., Dale, J. and King, N. 2007. Facilitating good process in primary palliative care: does the Gold Standards Framework enable quality performance? Family Practice.

National health priority areas http://aihw.gov.au/nhpa/index.cfm (Accessed August 6, 2009).

Okoli, C. and Pawlowski, S.D. 2004. The Delphi method as a research tool: an example, design considerations and applications. Journal of Information and Management, 42:15-29.

Older Australians at a glance. AIHW, 22 November 2007. ISBN-13 978 1 74024 732 0; AGE 2; (224):4th edition.

Palliative Care is Everyone's Affair. Palliative Care Australia submission to Australia 2020 summit, 9th April 2008.

Palliative Care Australia, 2005. A guide to palliative care service development: A population based approach, Palliative Care Australia, Canberra.

Palliative Care Australia, 2005b. Standards for providing quality palliative care for all Australians (4th ed.), Deakin West ACT: PCA.

Palliative Care Australia, 2003. Palliative care service provision in Australia: A planning guide. 2nd ed., Canberra: PCA.

Rabow, M.W., Dibble, S.L., Pantilat, S.Z. and McPhee, S.J. 2004. The Comprehensive Care Team A Controlled Trial of Outpatient Palliative Medicine Consultation. American Medical Association, p.83-91.

Richardson, J. and Robertson, I. 1999. Ageing and the costs of health services, Working Paper 90. Centre for Health Program Evaluation, Monash University.

Strauss, H. and Zeigler, H. 1975. The Delphi technique and its uses in social science research, Journal of Creative Behaviour, 9(4):253-259.

The Gold Standards Framework Department of Health England, 2005.

Walshe, C., Caress, A., Chew-Graham, C. and Todd, C. 2008. Implementation and impact of the Gold Standards Framework in community palliative care: a qualitative study of three primary care trusts, Palliative Medicine 22(6):736.

Williams, P.L. and Webb, C. 1994. The Delphi technique: a methodological discussion. Journal of Advanced Nursing, 19(1):180-186.

Psychosocial Indicator in Community Palliative Care 1
Professional practice
Q1. How do you maintain professional practice in palliative care?
Demonstrates professional practice standards in palliative care:

Triggers	Checks
Utilising knowledge of advanced illness coupled with palliative care to inform a comprehensive assessment of patient's needs	
Integrates Legal, Ethical and professional issues of informed choice, consent and empowerment in practice.	
Prime resource for providing advice, information and support to team members	
Independent in seeking positive outcomes for patients.	
Actively seeks new knowledge innovations for change	

Other points made:

Psychosocial Indicator in Community Palliative Care 2
Communicating with client, family and care givers on palliative care and end of life issues
Q2. How do you make your communication effective and appropriate?
Communication is effective and appropriate and involves patient, family and caregiver about:

Triggers	Checks
Disease Trajectories	
Treatment effects	
Therapeutic Care impacting patient, family and caregiver	
Relationships with patient, family and caregiver and health professionals	
Helping with personal or psychological matters	

Other points made:

Psychosocial Indicator in Community Palliative Care 3
Comfort and enhancing quality of life through symptom management
Q3. How do you ensure comfort for the patient and family to enhance quality of life through symptom management?
Enhances comfort and quality of life:

Triggers	Checks
Supports patient and family	
Anticipates changes in patient's condition and informs the palliative care team	
Consults with specialist support services	
Monitors client condition and takes appropriate action.	
Utilises therapeutic support intervention on symptom management	

Anticipates the following symptoms:	Checks	Anticipates the following symptoms:	Checks
Pain management Dyspnoea Emergencies Fatigue Oral Hygiene Spiritual Distress		Nausea and vomiting Anxiety Constipation Anorexia Depression Other	
Initiates social support to meet the needs of patient and family			
Demonstrates knowledge of benefits/financial support			
Provides care and support for caregiver			
Offers practical support			
Utilises community support agencies			

Other points made:

Psychosocial Indicator in Community Palliative Care 4
Utilises effective counselling approaches consistent with quality of life issues
Q4. How do you maintain a client-centred approach consistent with quality of life issues ?
Utilises a client-centred approach that fosters genuineness, unconditional positive regard for the client and family and reflects accurate empathy:

Triggers	Checks
Shows genuine concern	
Communication with family and others about grief, impending death and bereavement	
Shows empathy	
Unconditional positive regard for all	
Exercising information judgement	
Providing clarity of information	

Other points made:

Psychosocial Indicator in Community Palliative Care 5
Ethical issues in palliative care
Q5. How do you engage in ethical decision making in palliative care?
Engages in ethical decision making process:

Triggers	Checks
Anticipates ethical issues impacting patient, family and caregiver	
Understands ethical decision making process	
Anticipates ethical dilemmas	
Utilises a consultative process in ethical decision-making	
Manages pain ethically	

Other points made:

Psychosocial Indicator in Community Palliative Care 6
Advance directive issues in palliative care
Q6. How do you take care of advance directive issues in palliative care?
Considers advance directive issues:

Triggers	Checks
Working knowledge of advance directives	
Consults with team members including medical practitioner	
Discusses advance directive with patient, family and caregiver exercising judgement on information given	
Full documentation of patient and family wishes	
Implements advance directive as appropriate	

Other points made:

Psychosocial Indicator in Community Palliative Care 7
Cultural, religious and spiritual support for patient and family
Q7. How do you provide cultural, religious and spiritual support to the patient and the family?
Considers cultural, religious and spiritual support to the patient and the family:

Triggers	Checks
Cultural, religious and spiritual needs discussed with patient and family	
Displays cultural sensitivity	
Accommodates cultural practice	
Understands the importance of cultural procedures/rituals	
Uses knowledge of different cultural groups in order to anticipate specific needs of patient and family	
Supports patient and family to engage in observance of actions and procedures of the ceremonial activities	

Other points made:

Psychosocial Indicator in Community Palliative Care 8
Supports patient, family and caregiver through grief, loss and bereavement
Q8. How do you support the patient, family and the caregiver through grief, loss and bereavement?
Provides support in grief, loss and bereavement:

Triggers	Checks
Recognises distinction between normal and abnormal grief	
Acknowledges the support boundaries and makes appropriate referral	
Possesses comprehensive knowledge of bereavement services	
Uses advanced counselling skills	
Draws on coping and support strategies	
Refers appropriately to other agencies and services	
Acts as a bereavement care resource provision	

Other points made:

Psychosocial Indicator in Community Palliative Care 9
Care and support following Death
Q9. How do you support the family and caregiver following death?
Comforts family and caregiver following death:

Triggers	Checks
Preparation of family and caregiver for imminent loss	
GP involvement	
Procedure following death discussed	
Funeral director's involvement	
Completion of necessary documentation	
Considers bereavement support and counselling	
Attendance at funeral	
Initiate bereavement support	
Provides care for family and caregiver/s	

Other points made:

Psychosocial Indicator in Community Palliative Care 10
Palliative care team support
Q10. How do you foster palliative care team support?
Facilitates team support:

Triggers	Checks
Acts as a change agent	
Participates in case conference	
Evidence of decision-making to reflect the changing patient/family situation	
Cognizant of variety of services available	
Identifies limits of service provision	
Generates proposals for service development	
Collates and uses health data to inform policy and health care practice	

Other points made:

Psychosocial Indicator in Community Palliative Care 11
Professional and personal development of palliative care team members
Q11. How do you ensure the professional and personal development of palliative care team members?
Promotes professional and personal development through consultation and research:

Triggers	Checks
Peer consultation	
Empowerment of colleagues	
Understands the research process	
Draws on research literature	
Engages in research	
Contributes to knowledge capital (palliative care)	
Considers funding opportunities	
Engages in reflexive thought	

Other points made:

Psychosocial Indicator in Community Palliative Care 12
Evidence based practice in Palliative Care
Q12. How do you utilise evidence based practice in palliative care?
Demonstrates an awareness in evidence based practice in palliative care:

Triggers	Checks
Draws on General and discipline specific professional issues knowledge base in palliative care	
Understands principles of research and EBP	
Acts as a resource on different approaches to palliative care	
Uses EBP as a rationale for prescribed care	
Understands implications and limitations	
Engages in efficient and effective resource management	
Engages in critical self-evaluation through reflection and analysis.	
Utilises research findings	
Supporting evidence on recording/documentation available	

Other points made:

Expert to novice: Experiences of professional adaptation reported by non-English speaking nurses in Australia

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KEY WORDS

Nurse education, competency based assessment, professional adaptation.

ABSTRACT

Objective

Adaptation to a new area of clinical practice creates a significant challenge for any nurse, but this is particularly so for migrant nurses of non-English speaking background (NESB). The aim of the study was to understand the perceptions of overseas qualified nurses, from non-English speaking backgrounds of their educational experiences in a competency based assessment program (CBAP) in Melbourne with a particular focus on the clinical component.

Design

The study was conducted using a modified grounded theory approach. Data were collected using in depth audio taped interviews, observation in clinical practice and personal journal entries. Initially a purposive sample was chosen followed by theoretical sampling. Thirteen NESB nurses, one Australian born nurse and three of their teachers took part in the study. The constant comparative method was used to analyse data.

Setting

The CBAP was conducted in two Melbourne based universities. The study was carried out in four hospitals in Melbourne representing public and private facilities.

Participants

Thirteen NESB nurses, one Australian born nurse and three of their clinical teachers participated.

Main outcomes

Nurses reported feelings of disempowerment caused by discriminatory practices, professional isolation and unrealistic expectations by local nurses. The experience challenged feelings of competence as much as it expanded feelings of competence.

Results

Three themes emerged. Themes revolved around language use, quality of communication and non-recognition of professional skills by local nurses, which resulted in disempowerment, damaged perceptions of competence and stunted progress towards regaining a full professional identity. There were some suggestions of workforce discrimination.

Conclusions

Strengths of the program revolved around the opportunity for NESB nurses to undertake a formal assessment process in order to achieve registration in Victoria. Limitations related to lack of support in the clinical environment. It was revealed that although the adaptation process was complicated for individuals by cultural, linguistic and professional issues, the main challenge seemed to relate more to the clinical workforce culture that operated at some hospitals. Nurses reported feelings of disempowerment caused by discriminatory practices, professional isolation and unrealistic expectations by local nurses.

INTRODUCTION

International nurse migration is an established feature of the global nursing workforce (Blyth and Baumann 2009). Australia is both a source and a destination country in that global market (North 2007). Recent overviews of challenges facing NESB nurses entering the workforce in Australia describe the problems of adaptation to professional, cultural and linguistic challenges (e.g. Wang et al 2008; Seibold et al 2007); but few have focussed on the nurses' feeling of isolation, loneliness, and reduced competence when first confronted with clinical practice. However, Brunero et al (2008) found that NESB nurses experienced loneliness, isolation and difficulty in settling into nursing in Australia. No previous studies that examined the experiences of NESB nurses in CBAP have been uncovered. Because nurses from NESB backgrounds are likely to adapt to a new workforce in different ways (Blyth and Baumann 2009) it is important for local nurses to understand the challenges associated with that adaptation, because it affects everyone involved in health care delivery (Chiang and Crickmore 2009; Denton 2009). This paper examines the extent to which some of the needs of NESB nurses were recognised and attended to in one cohort of overseas qualified nurses. Their experiences raise doubts about the validity of CBAP to prepare overseas qualified nurses for professional registration in Australia.

METHODOLOGY AND METHOD

The study was conducted using a modified grounded theory approach. According to Charmaz (2006), grounded theory refers to both a method of inquiry and to the product of inquiry. In this study it was used as a method of inquiry and a way of analysing data. This study focused on perceptions of the participants and therefore the grounded theory methodology provided an appropriate set of assumptions to investigate the question because of the usefulness of the approach in terms of helping to explain relatively unknown situations (Taylor et al 2006). Some classical views of the method advocate the analysis of social processes and basic psychological processes as being an integral approach to the grounded theory method (Charmaz 2006). However, Glaser (2002) claims that to focus exclusively on these processes forces fit on the data rather than allowing the concepts to emerge. In this study the concepts were allowed to emerge from the data and it was found that a number of contextual factors and interactions influenced the experiences of the NESB nurses. Three of the themes that emerged will be reported on in this paper.

A purposive sample was chosen followed by theoretical sampling. The constant comparative method was used to analyse data, with open coding, axial coding and selective coding used as an organising framework for analysis.

Data were triangulated by using in-depth audio taped interviews, observation and personal journal entries (Miles and Huberman 1994). For the purpose of further triangulation, one Australian born and educated nurse was interviewed. Phase one of the study involved the assistance of five non-English speaking nurses who had completed a CBAP within the previous twelve months. In order to seek their opinions regarding issues that were of central importance to them during the course of their study, with a view to guiding the initial data collection process. Phase two represented data collection through semi-structured interviews, journal entries and informal conversation before, during and following direct observation. Observation centred on NESB nurses only and did not include the teachers, nor the discriminat case.

The interviews were approximately one hour in duration and were later transcribed verbatim. Open coding, axial coding and selective coding were used as an organising framework for analysis.

The participants included thirteen nurses enrolled in a CBAP in two universities and associated hospitals in Melbourne in 2005-2006, three of their teachers and one Australian-born nurse (n=17). The age range of the NESB nurses was 25 to 40 years. The overseas qualified nurses came from diverse cultural and linguistic backgrounds: India, China,

Philippines, El Salvador and the Czechoslovakia Socialist Republic. They fell into three main groups in terms of their previous professional experience. The *specialist* group (n = 5) had practised in clinical specialities such as operating rooms and intensive care units for extended periods up to ten years. The experienced *generalists* (n = 5) had practiced in a variety of acute care settings, for example medical surgical units and emergency. The inexperienced generalists (n = 3) were nurses who had graduated in the previous three years and had nursed in one or two clinical areas, such as coronary care and surgical units. The Australian born nurse who acted as a discriminant case was an experienced generalist nurse who undertook the course following a break in his/her practice in order to re register with the Nurses Board of Victoria.

Competency based assessment programs for NESB nurses consist of theoretical and clinical components designed to enable them to demonstrate the Australian Nursing and Midwifery Council (ANMC) National Competency Standards. The study was carried out in two universities and four hospitals around Melbourne. The hospitals represented public and private facilities and a variety of clinical settings. The clinical component consisted of eight weeks at a clinical venue.

Ethical approval was obtained through the ethics committees of participating universities and hospitals. Written consent was obtained from all participants in the study. All participants were assigned a pseudonym to protect their identity.

FINDINGS

Analysis of data from the NESB nurses and their teachers supported the same themes. Three themes will be presented with quotes from both NESB nurses and their teachers to illustrate each theme. Each quote is followed by the designation of the participant e.g. nurse, meaning NESB nurse or teacher. Themes revolved around language use, quality of communication and non-recognition of professional skills by local nurses, which resulted

in disempowerment, damaged perceptions of competence and stunted progress towards regaining a full professional identity. There were some suggestions of workforce discrimination. Therefore the main themes were Language and Communication, Professional Identity and Discrimination. Quotes are written exactly as provided by NESB nurses and therefore reflect the use of English as a second language.

Theme One
Language and Communication
The first theme developed from problems reported by NESB nurses in relation to communication with local nurses. They reported two main problems: (a) the difficulties of conveying complex information during the time allotted for the handover between shifts; and (b) the difficulties associated with understanding abbreviations in written instructions and the slang used by local nurses.

The requirement to provide a nursing handover to the nursing team occurs very early in the clinical placement. Comments regarding that experience reflected some humiliating behaviours towards one NESB nurse as evidenced by this comment from Lei, a specialist nurse of Chinese background:

It's a big concern for me because some nursing staff is not friendly when you do handover, some are laughing and some are doing Ar, Ar, Ar like this (Tape: 217)*, and it make me feel so uncomfortable. This have a big impact on me because I am afraid to do that handover again, maybe I will refuse to do handover again. It make me nervous because once the nurse laugh at me then tomorrow that nurse could be my buddy and I'm afraid to ask questions, I will keep quiet because I'm afraid she will laugh at me again. Lei (Nurse) PG6: Ln4-6. I think this influence me because once they treat me very bad of course I'm reluctant to do some things and sometimes I want to escape.* Lei (Nurse) PG12: Ln2

The perception that some registered nurses in this study were responding negatively was supported by one of the clinical teachers. Gail, a teacher believed that:

A lot of staff treat the students, (NESB nurses) as if they are completely stupid, anyone with an accent is automatically considered an idiot. They will speak really fast and not repeat themselves and then they just come and tell me that the student can't speak English. Gail (Teacher), PG1:Ln8

The problems of accented English or lack of understanding of technical language created difficulties for both local and international nurses during the handover. But from the NESB nurses' viewpoint, the registered nurses were increasing the difficulties by their use of slang and abbreviated handover documentation. As Alana, from El Salvador explained:

Very nervous about communication in the clinical environment, they try to make it short and it's hard for me to know what they exactly are talking about. Lots of abbreviations and I feel bad, I think maybe I'm not good enough. Alana (Nurse) PG2:Ln9

Mei Li, a specialist nurse from China, reported a problem with abbreviations:

You know the abbreviations I find it's really difficult one, abbreviation can mean lots of things. At hospital they have their own abbreviations. Sometimes the nurses use abbreviations. I don't know how they can use lots of abbreviations in their progress notes. In the law in Australia they said in real documentation couldn't use abbreviations [sic], nurses use abbreviations, very hard to read it. Mei Li (Nurse) PG6: Ln7.

These communication issues seemed to have an influence beyond the immediate problem of negotiating an effective handover at the end of each shift. They impinged on the NESB nurses' sense of regaining their professional identity.

Theme Two
Professional Identity
Seven nurses out of thirteen spoke about their attempts to find their own identity in professional practice. They reported considerable challenges to their professional identity related to the context, scope and the professional knowledge base

necessary to practice in Australia. Feelings of disempowerment related to a number of issues in practice including language and cultural differences, as well as practice and policy issues.

They experienced various levels of frustration with being relegated to novice status in practice and the associated lack of autonomy. Their sense of disempowerment became stronger when they perceived their registered nurse colleagues to be unknowing of, or unsympathetic to their situation.

Deanne, an experienced generalist nurse from the Czechoslovakia Socialist Republic, commented:

The big challenge, you have to overcome a few things like the beginner in practice, and the attitudes of some staff, they are not very friendly it's not very nice. I'm still trying to find my own way because I'm still so much with the buddy nurse and the clinical educators as well. Sometimes you think it's not right and you get the feeling as a nurse that you would do that different, but still haven't got your registration so…. Deanne (Nurse) PG4: Ln 6

Theme Three
Discrimination and Lack of Support
In this study, five out of the nine people who commented on the issue reported feeling upset by perceived discrimination and lack of support on the basis of their ethnicity or background. The following comment from a nurse from the Philippines provides an example:

Here I found some staff really rude, discriminating because I come from the Philippines, sometimes they are challenging you if you can do what they are doing. Sometimes if you are asking them to help they will say why don't you look for your clinical instructor. Leesa (Nurse) P3:Ln1

Deanne reported unprofessional and discriminatory behaviour by registered nurses was observed by patients and relayed to her:

We saw (patients words reported by the NESB nurse) the nurses in the nurses' station and they were making faces behind your back which is not really professional. Deanne, (Nurse) PG 2:Ln5

The nurses' perceptions of exclusionary behaviour are supported by two of their university teachers, Gail and Donna. Gail, for example, commented on the effects of this negativity:

It's limiting communication with the student (NESB nurse). Well absence of any social communication. Sometimes, it's limiting professional communication... it's the tone, it's the eye contact. You know two nurses will be having a social conversation and one of the students will come up because I've asked them to report an abnormal BSL (blood sugar level) and they'll leave the student waiting there, not talking to them until they are ready to address them and that is very, very demeaning to a thirty or forty year old woman and the grad might be twenty one or twenty two. Gail (Teacher), PG6:Ln1

The NESB nurses' concerns were supported by observations carried out on a surgical unit. During one of these observation sessions the authors spoke with and observed a specialist nurse from China. She was working alone in a different section to that where she had worked until ten o'clock on the previous night. It was a busy surgical unit and she complained of feeling tired:

Worked until ten last night, started at seven this morning. Missed meal break last night too busy. My buddy has gone to morning tea she doesn't tell me when she is going, doesn't ask me when I want to have a break.

I can't assess my patients this morning. I have three, all require full assistance with hygiene then, I have to assist my buddy with her patients. Lei (Brown notebook) Page 10:Ln1-19

Uncovering direct and conclusive evidence of exclusionary behaviour that results in discrimination in clinical settings is extremely difficult. All that can be said here is that the majority of the nurses reported experiences of alienating and dehumanising practices in the clinical environments. The implications of these reports are important, because despite more than two decades of increasing emphasises on provision of services to culturally diverse health consumer groups, perhaps little has changed in terms of how nurses from culturally diverse backgrounds are treated in the clinical environment.

DISCUSSION

The most important findings to emerge were that the nurses' feelings of competency were affected by, inconsistent levels of educational and professional support and negative experiences of prejudice from some clinical staff. These perceptions were not mediated by previous levels of professional experience; or, by their clinical specialisation. Specialist nurses reported more serious concerns regarding their prospects of future employment in their preferred area of specialisation. The implications of this for the profession and the health care system are that even the most experienced specialist and generalist nurses are not having their level of skill appropriately recognised and utilised in a timely way despite the current shortage of generalist and specialist nurses in Victoria.

The findings from this study support the general view (e.g., Baker and Hawkins 2006; Kilstoff and Baker 2006) in the literature that the nature of the clinical practicum intensifies the impact of learning, adapting and growing into professional roles in situations of diversity. These perceptions can be linked to professional development in nurse education, and the inclusion of multicultural perspectives in nurse education. Clearly, if NESB nurses are ridiculed for their unfamiliarity with local clinical practice and are made to feel inadequate, they will find it difficult to demonstrate optimal levels of competence (Chiang and Crickmore 2009; Kingma 2008). An equally important reason for attending to and improving relationships among local and international nurses is noted by Kingma 2008 i.e. that the serious psychological impact of non-inclusive behaviours on the part of local nurses toward NESB creates a threat to patient safety.

According to Cope and Kalantzis (1997 pp16) productive diversity is a relationship between perceived traditions and the necessity to negotiate change. They suggest that a way of approaching this

would be to replace the singular corporate culture which 'produces ghettos' and instead cultivate internal variety and permeable boundaries. Applied to the clinical practicum in hospitals, this productive diversity perspective would extend the perspectives put forward by the teachers in this study to include not only a professional development curriculum but also an approach to the organisational climates of hospitals that could cultivate such internal variety with a view to ensuring that the skills of NESB nurses are recognised, further developed and utilised appropriately.

CONCLUSION

The findings led to the conclusion that the current system of providing education for NESB nurses is not conducive to the identification and timely utilisation of existing specialist and generalist skills in that population if viewed in terms of relevant theoretical perspectives on nurse education, education in the workplace, adaptation, productive diversity and the stated aims of this particular program to provide a supportive and inclusive environment. One possible solution to this problem, suggested by the NESB nurses and teachers, could be the provision of staff education at the unit level regarding intra-personal issues such as linguistic and cultural differences and the variations that exist in the role of the professional nurse in various parts of the world. The NESB nurses, in explaining the difficulties they encountered, suggested an approach to staff education based on information sharing with a view to informing staff about their professional capabilities, past clinical experience and role, as well as their learning objectives in the current situation. Clinical nurses need to be aware that learning and adapting to the current situation are interrelated processes.

RECOMMENDATIONS

Adaptation to professional practice in a new country, if not sensitively addressed can lead to wastage of professional expertise.

Provision of a staff education program with the specific aim of raising awareness amongst unit managers and clinical nurses regarding the challenges associated with the process of professional adaptation, with a view to creating a more positive practice environment for all concerned.

Provision of improved mentoring and professional modelling processes through recognition of the difficulties that may be encountered by local nurses regarding the significance of socio-political and contextual knowledge on the part of NESB nurses; and, the provision of opportunities for local and NESB nurses to debrief and receive support and education on possible ways to deal with such issues at the clinical level.

Initiation of a positive environment for culturally diverse staff, in view of the culturally diverse nature of the current workforce and the acute shortage of clinical nurses.

REFERENCES

Baker, G. and Hawkins, K. 2006. The international student journey. Australian University Review, 48(2):20-25.

Blyth, J. and Baumann, A. 2009. Internationally educated nurses: Profiling workforce diversity. International Nursing Review, (56) 191-197.

Brunero, S., Smith, J. and Bates, E. 2008. Expectations and experiences of recently recruited overseas-qualified nurses in Australia. Contemporary Nurse, 28(1-2):101-110.

Charmaz, K. 2006. Constructing grounded theory: A practical guide through qualitative analysis. Sage: London.

Chiang, V. and Crickmore, B-L. 2009. Improving English proficiency of post-graduate international nursing students seeking further qualifications and continuing education in foreign countries. The Journal of Continuing Education in Nursing, 40(7):329-336.

Cope, B. and Kalantzis, M. 1997. Productive diversity: A new Australian model for work and management. Pluto: Annandale NSW.

Denton, S. 2009. Nation-to-nation: Challenges to addressing the effects of emerging global nurse migration on health care delivery. Policy, Politics and Nursing Practice. http://ppn.sagepub.com/cgi/content/abstract/7/3_suppl/76s accessed 06.08.09).

Glaser, B. 2002. Constructivist grounded theory. Forum Qualitative Social Research 3 (3) http://www.qualitative-research.net/index.php/fqs/article/viewArticle/825/1792 (accessed 06.01.10)

Kingma, M. 2008. Nurses on the move: Diversity and the work environment. Contemporary Nurse, 28(1-2):198-206.

Kilstoff, K. and Baker, J. 2006. International postgraduate nursing students: Implications for studying and working within a different culture. Contemporary nurse, 22(1):7-16.

Miles, M. and Huberman, A. 1994. Qualitative data analysis. Sage: London.

North, M. 2007. International nurse migration: Impacts on New Zealand. Policy, Politics and Nursing Practice. http://ppn.sagepub.com (accessed 17.08.08).

Seibold, C., Rolls, C. and Campbell, M. 2007. Nurses on the move: Evaluation of a program to assist international students. *Contemporary Nurse,* 25(1-2):63-71.

Taylor, B., Kermode, S. and Roberts, K. 2006. Research in nursing and health care: Evidence for practice (3rd edn). Thompson: Melbourne.

Wang, C-W., Singh, C., Bird, B. and Ives, G. 2008. The learning experiences of Taiwanese nursing students studying in Australia. *Journal of Transcultural Nursing,* 19(2):140-150.

Reasons for and barriers to influenza vaccination among healthcare workers in an Australian emergency department

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KEY WORDS

Influenza, emergency department (ED), healthcare workers (HCW).

ABSTRACT

Objective
To examine attitudes and beliefs to influenza vaccination among healthcare workers in an Australian emergency department and to assess the vaccine uptake for 2007 influenza season and intentions for the 2008 season.

Design
Cross-sectional study using a self administered questionnaire.

Setting
Emergency department of an urban teaching hospital in Australia.

Subjects
Participants included all ED staff both clinical and non-clinical/administrative.

Main outcome measure
Self reported reasons for and barriers against vaccination; proportion of staff vaccinated in 2007 and willingness to get vaccinated in 2008 in staff categories were asked.

Results
Response rate was 90% (63 of 70). The overall vaccination rate reported in 2007 was 58.7% and the reported rate of those willing to be vaccinated in 2008 was 71.4 % (p=0.057). Vaccine was freely provided to all staff by the institution and 88.9% stated they had no problems in accessing vaccine. Performance of the vaccination in relation to knowledge and attitudes with particular interest in reasons for having or not having the vaccine was investigated.

Conclusion
Despite campaigns by the infectious disease unit and an outbreak of influenza A in Australia with confirmed cases by laboratory tests being in the department, misconceptions about the vaccine were common and only 56.4% of nurses and 58.7% of all staff including nurses were vaccinated in 2007 with an expected uptake of 71.4% in 2008. Some staffs attitude towards the vaccine remained unchanged; therefore combined strategies in campaigns may be needed to increase the vaccine uptake.

INTRODUCTION

The influenza virus has been known to be one of the major causes of morbidity and mortality worldwide, with worse outcomes for the young, the elderly and the chronically ill (CDC 2007; Tapiainen et al 2005; McBean et al 2004). Vaccines have been developed for seasonal influenza outbreaks and usually targets influenza A (H1N1), (H3N2) and influenza B. World Health Organization also encourages the use of the vaccine in humans at risk of H5N1 (avian influenza) stating that, vaccination with current inter-pandemic vaccine will not protect humans from infection with avian H5N1 influenza – rather, it minimises the risk of co-infection and genetic reassortment of human and avian influenza viruses in humans (WHO 2004). In Australia, laboratory confirmed influenza is a notifiable disease in all jurisdictions (McKay 2009). The Australian National Health and Medical Research Council (NHMRC) CEO in a pre-influenza season media release recommended vaccination for, anyone over 65 years and of any age with risk factors such as diabetes, heart disease or severe asthma, anyone with suppressed immunity due to illness or medication, pregnant women, people of Aboriginal or Torres Strait Islander origin and health care workers (Warwick 2008). Routine vaccination of healthcare workers is also recommended by many institutions and its benefits in reducing occupational risk of infection is well documented (Hofmann et al 2006).

Approximately 2,500 Australians die each year from influenza related complications and with over one million people in the at risk groups as defined by the NHMRC, a proactive approach has to be taken to protect them and the people who care for them (Warwick 2008). It has been speculated that, HCW's in the ED are an important target group in breaking the cycle of infection spread for two reasons: (1) they stand high chances of contracting the illness since they attend to the sick during the pandemic; and (2) they can be one of the main sources of the spread of infection as HCW's come into contact with many high risk clients.

The economic benefit of the vaccine to staff members, healthcare institutions and the country is summarised by a study conducted at a Japanese hospital from December 1999 through to March 2000. It examined the effectiveness of influenza vaccine in reducing illness, absenteeism, and health care use among healthcare workers. The results found that among vaccine recipients, the number with febrile illness, severe illness, and febrile upper respiratory-tract illness was significantly greater than among non recipients. Use of prescription antibiotics and over the counter medications was also reduced. Influenza vaccine also reduced the reported days of absence from work. The net effect was a reduction in cost to the provider, the patient, and generally the entire healthcare delivery system (Piccirillo and Gaeta 2006).

A high vaccination coverage of HCW's therefore is important but many HCW's in Australia remain unvaccinated (Bull et al 2007; Halliday et al 2003). Improvement can be achieved if the reasons for, and above all, barriers against vaccination in these important groups are better understood (McCormack and McCall 2008). A cross-sectional study was undertaken to gain insight into the reasons for and barriers to vaccination in HCW's of an urban ED department among ED staff and to assess, the general vaccination coverage during the last year's flu season as well as intention to receive vaccination during the upcoming season.

METHODS

A self administered questionnaire was distributed to all available emergency department staff during April and May 2008. The self administered questionnaire was distributed on site to doctors and nurses who work with direct patient contact and administrative workers (clerical and wardsmen) who also have contact with patients. The structured questionnaire of the survey generally addressed issues of influenza immunisation in HCW's. Especially the present immunisation status and future influenza immunisation plans, knowledge about

the immunisation, knowledge of and exposure to immunisation recommendations were covered. In an open ended question, reasons for taking or not taking the immunisation were asked and later in the questionnaire, a series of potential influencing factors such as contact at home to young children (<5 years of age) and elderly (>65 years of age) were recorded. Additionally some known barriers to influenza vaccination were prompted in the questionnaire such as allergy to eggs, allergy to another vaccine component, pregnancy, severe reactions during prior immunisations and the belief that the vaccine may cause influenza. Furthermore associations of the occurrence of influenza during the last season, vaccine status and productive time lost as a result of influenza illness were recorded.

The data were entered from the hard-copy questionnaire into a database and analysed using SPSS (version 16.0 for Windows).

RESULTS

A total of 70 out of 75 ED staff were present during the study period and invited to participate; out of these 63 staff completed the questionnaire resulting in a participation rate of 90%. Participants were predominantly female (66.7%) with age distribution as shown in table 1 below. The nursing discipline had the largest representation among the participants with 62% (n=39) while medical and administration was similarly represented at 19% (n=12) each.

Table 1: Gender and AgeGroup Crosstabulation

	Age Group				
Gender	18-25	26-35	36-45	Over 45	Total
Male	1	8	7	5	21
Female	6	12	9	15	42
Total	7	20	16	20	63

The overall self reported influenza vaccination proportion for the 2007 season was 58.7% (37/63) while 71.4% (45/63) stated that they were planning to take up influenza vaccination for the 2008 season (p=0.057 exact McNemar test). Neither the 2007 vaccination proportion, nor the projected 2008 proportions were significantly associated with gender,

age group, discipline or employment status (for details please refer to table 6).

The main reasons stated for having had the vaccine in 2007 among those vaccinated (n=37) are recorded in table 2 below in descending order of frequency.

Table 2: Reasons for having the influenza vaccination in 2007 (n=37)

Reasons	Frequency	Percent
Protect self against flu	37	58.7
Prevent cross-infection	26	70.3
I have it routinely as annual immunisation	16	43.2
Required by the institution	7	18.9

The main reasons stated for not having had the immunisation in 2007 (n=26) are recorded in table 3 below in descending order of frequency.

Table 3: Reasons for not having had the influenza vaccination in 2007 (n=26)

Reasons	Frequency	Percent
Vaccine causes influenza	7	26.9
Not concerned	6	23.1
Trust in/Wish to challenge natural immunity	5	19.2
Not all strains are covered	2	7.7
Others* (each)	1	3.8

*prior experience of severe localised reaction to the vaccine, allergy to vaccine and physicians advice were all named once each.

Table 4 below shows the main reasons stated for intending to get immunised during the 2008 season (n=45) in descending order of frequency.

Table 4: Reasons for intending to get immunised in 2008 (n=45)

Reasons	Frequency	Percent
I care about my clients/patients	24	53.3
I have child contact at home	18	40
I am convinced by infection control depts. campaign	14	31.1
Pandemic getting worse as per 2007	6	13.3

The main reasons mentioned for not intending to have the vaccine in 2008 (n=18) are shown in table 5 below in descending order of frequency.

Table 5: Reasons for not intending to get immunised in 2008 (n=18)

Reasons	Frequency	Percent
Trust in or the wish to challenge natural immunity	6	33.3
Vaccine causes influenza	5	27.8
Others (each)**	1	5.6

**previous severe localised reaction, will not be a healthcare worker, physicians advice, not concerned and do not see the benefits were all named once.

The self reported incidence of influenza like illness during the 2007 season was 11.5% (n=3) in those who did not take the influenza vaccination in 2007 (n=26; 41.3%) and was 13.5% (n=5) in those who took the vaccination in 2007 (n=37; 58.7%); this difference is not significant (p>0.9).

All five of the vaccinated participants with an influenza like illness had to take sick leave during the episode (between one and three days) which compares to two out of three unvaccinated participants (between one and three days); not significant (p>0.9).

Table 6: 2007 vaccinated proportion and 2008 projected vaccination proportions in relation to basic demographics, discipline, employment status and contact to children/elderly.

	2007 Vaccination	p-value	2008 Vaccination	p-value
Age group				
18-25 yrs.	71.4% (5/7)		85.5% (6/7)	
26-35 yrs.	65.0% (13/20)		55.0% (11/20)	
36-45 yrs.	31.3% (5/16)		75.0% (12/16)	0.29
>45 yrs.	70.0% (14/20)	0.09	80.0% (16/20)	
Gender				
male	61.9% (13/21)		76.2% (16/21)	
female	57.1% (24/42)	0.79	69.0% (29/42)	0.77
Discipline				
medical	58.3% (7/12)		58.3% (7/12)	
nursing	56.4% (22/39)		74.4% (29/39)	
clerical/wardsmen	66.7% (8/12)	0.93	75.0% (9/12)	0.54
Employment				
part time	57.1% (24/42)		73.8% (31/42)	
full time	61.9% (13/21)	0.79	66.7% (14/21)	0.57
Children <5 in household				
no	65.2% (30/46)		76.1% (35/46)	
yes	41.2% (7/17)	0.15	58.8% (10/17)	0.22
Elderly >65 in household				
no	56.9% (33/58)		69.0% (40/58)	
yes	80.0% (4/ 5)	0.39	100% (5/5)	0.31

A total of 18 (28.6%) participants had contact with a confirmed influenza A case during the 2007 influenza season at work in the department. Out of these, three (16.7%) suspect they acquired the influenza during the 2007 season which compares to five (11.1%) coming down with influenza out of those (n=45; 71.4%) who had no contact to a confirmed influenza case at work (not significant; p=0.68).

The contact to a confirmed influenza case at work did not significantly (p=0.36) influence the planned influenza vaccination behaviour for the following (2008) season. 61.1% (n=11) of those having had contact to a confirmed influenza A case in 2007 planned to take the vaccination in 2008, while 75.6% (n=34) of those without reporting such contact were planning to get vaccinated in 2008.

DISCUSSION

The benefits of influenza vaccination to Australian HCW's and the end results to their service recipients have been emphasised by various institutions such as NHMRC (Warwick 2008). Ofstead et al (2008) mentions HCW's with direct patient contact as is the case with nurses being at high risk for influenza infection with serological evidence suggesting 13%-23% of HCW's experience influenza each year.

With a vaccination rate of 58.7% in 2007 and an expected rise to 71.4% in 2008 among participants at the Canberra based ED. In particular the nursing discipline vaccination rate of 56.4% in 2007 and an expected increase to 74.4% (table 6) in 2008, this is an encouraging increase for staff uptake of the vaccine. Even though this uptake is not optimum when compared to rates published from other institutions such as 21% from a tertiary geriatric hospital in Villejuif, France during 2004/2005 (Trivalle et al 2006), 28% from staff in aged care facilities in the ACT in 2000 (Halliday et al 2003), 38% from Victorian public hospitals during 2005 (Bull et al 2007), 50% from a New York metropolitan ED in 2004 (Piccirillo and Gaeta 2006) and 53% from staff caring for high-risk paediatric patients in paediatric prevention network hospitals in the United States of America during 2000/2001 (Bryant et al 2004). There were also well performing institutions, St. Jude children's research hospital in Memphis, Tennessee recorded vaccination rates of 45% in 2003 but since the institution attends to patients with complex health needs who are immunosuppressed, these low rates prompted an intensified campaign to vaccinate employees. The outcome of the campaign was positive with a rise of vaccinated HCW's to 80% in 2004 (McCullers et al 2006).

The most popular reason for having the vaccine among immunised participants was self protection against the flu. Other studies also show self protection as being a major factor in HCW's vaccination rates (Christini et al 2007). Seventy percent of participants were concerned about their colleagues, clients and community in preventing cross infection which also concurs with similar studies (Steiner et al 2002). Popular reasons mentioned for not having the vaccine include 'trust in, or the wish to challenge natural immunity', 'physician's advice against the vaccine for medical reasons', 'severe localised effects from the vaccine', and 'not believing the vaccine to have any benefit'. Staff confidence in their health as an inhibiting factor against the vaccine was also mentioned by Song et al (2006) in Korea. The other major reason for not having the vaccine was the belief that it causes influenza (27%), this belief exists despite a vigorous campaign by institutions like National Institute of Clinical Studies (NICS) and NHMRC through the hospitals infection control department to dispel the myth that the vaccine may cause influenza.

Vaccination uptake among the staff was not influenced by having contact with children who are ≤five years old or the elderly ≥65 years old at home despite these groups being universally classified as at risk by the majority of the institutions/ organisations.

CONCLUSION

This study reveals a possible upward trend when 2007 vaccine coverage (58.7%) is compared with the expected vaccine uptake for 2008 (71.4%) within the same population. Though the expected vaccine coverage for nurses who mostly maintain contact with patients (74.4%) in 2008 is a good figure, a mixed method of strategies with more campaigns tailored to the barriers need to be conducted if even better results are to be realised. Reasons cited for the vaccine uptake are mostly on protection to self and others. Barriers against vaccination identified in 2007 are also anticipated to exist in 2008. Therefore, to overcome these barriers and increase uptake, it is recommended that a vaccination campaign needs to be carefully designed and tailored to address staff beliefs such as: (1) trust in or the wish to challenge natural immunity; and (2) vaccine causes influenza, since 33.3% and 27.8% of those not willing to have the vaccine in 2008 cite these as the reason. To raise the staffs concern, the campaigns need to

address the cycle and spread of the influenza virus and the role the HCW's can play in either hastening/controlling the spread and this can also explain the benefits of the vaccine.

Staff having contact with children ≤five years old and elderly people (≥65 years) either at home or at their place of work can also be targeted by the campaign as they are classified as at risk groups. The influenza A outbreak in 2007 and any future outbreaks of different strains that may occur is also an important factor that may influence staff's future decisions on influenza vaccination and it is worthwhile mentioning it in the campaigns.

REFERENCES

Bryant, K.A., Stover, B., Cain, L., Levine, G.L., Siegel, J. and Jarvis, W.R. 2004. Improving influenza immunisation rates among healthcare workers caring for high-risk pediatric patients. Infection Control and Hospital Epidemiology, 25(11):912-917.

Bull, A.L., Bennett, N., Pitcher, H.C., Russo, P.L. and Richards, M.J. 2007. Influenza vaccine coverage among health care workers in Victorian public hospitals. Medical Journal of Australia, 186(4):185-186.

CDC. 2007. Key Facts About Seasonal Influenza (Flu). Atlanta: Centre for Disease Control and Prevention.

Christini, A.B., Shutt, K.A. and Byers, K.E. 2007. Influenza vaccination rates and motivators among healthcare worker groups. Infection Control and Hospital Epidemiology, 28(2):171-177.

Halliday, L., Thomson, J.A., Roberts, L., Bowen, S. and Mead, C. 2003. Influenza vaccination of staff in aged care facilities in the ACT: how can we improve the uptake of influenza vaccine? Australian and New Zealand Journal of Public Health, 27(1):70-75.

Hofmann, F., Ferracin, C., Marsh, G. and Dumas, R. 2006. Influenza vaccination of healthcare workers: a literature review of attitudes and beliefs. Infection, 34(3):142-147.

McBean, A.M. and Hebert, P.L. 2004. New estimates of influenza-related pneumonia and influenza hospitalizations among the elderly. International Journal of Infectious Diseases, 8(4):227-235.

McCormack, J., and McCall, B. 2008. Influenza vaccination for healthcare workers: towards improving uptake. Healthcare Infection, 13(1). 1-3

McCullers, J.A., Speck, K.M., Williams, B.F., Liang, H. and Mirro, J. 2006. Increased influenza vaccination of healthcare workers at a pediatric cancer hospital: results of a comprehensive influenza vaccination campaign. Infection Control and Hospital Epidemiology, 27(1):77-79.

McKay, I. September 2009. National Notifiable Diseases Surveillance System. Communicable Diseases Intelligence, 33(3). 348-357

Ofstead, C.L., Tucker, S.J., Beebe, T.J. and Poland, G.A. 2008. Influenza vaccination among registered nurses: information receipt, knowledge, and decision-making at an institution with a multifaceted educational program.[see comment]. Infection Control and Hospital Epidemiology, 29(2):99-106.

Piccirillo, B. and Gaeta, T. 2006. Survey on use of and attitudes toward influenza vaccination among emergency department staff in a New York metropolitan hospital. Infection Control and Hospital Epidemiology, 27(6):618-22.

Song, J.Y., Park, C.W., Jeong, H.W., Cheong, H.J., Kim, W.J. and Kim, S.R. 2006. Effect of a hospital campaign for influenza vaccination of healthcare workers. Infection Control and Hospital Epidemiology, 27(6):612-617.

Steiner, M., Vermeulen, L.C., Mullahy, J. and Hayney, M.S. 2002. Factors influencing decisions regarding influenza vaccination and treatment: a survey of healthcare workers. Infection Control and Hospital Epidemiology, 23(10):625-627.

Tapiainen, T., Bar, G., Schaad, U.B. and Heininger, U. 2005. Influenza vaccination among healthcare workers in a university children's hospital.[see comment]. Infection Control and Hospital Epidemiology, 26(11):855-858.

Trivalle, C., Okenge, E., Hamon, B., Taillandier, J. and Falissard, B. 2006. Factors that influence influenza vaccination among healthcare workers in a French geriatric hospital. Infection Control and Hospital Epidemiology, 27(11):1278-1280.

Warwick, A. 2008. Health Care Workers as well as at risk goups must be immunised against influenza to save lives says NHMRC chief. edited by NHMRC: National Health and Medical Research Council.

WHO. 2004. Guidelines for the use of seasonal influenza vaccine in humans at risk of H5N1 infection. Geneva: WHO.

Women's experience of postnatal depression – beliefs and attitudes as barriers to care

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ABSTRACT

Objective
Despite the increasing use of screening instruments to identify women with postnatal depression (PND), many do not access services and supports. It is unclear how women's experiences of PND influence their beliefs and attitudes and their choice to seek help. We will also explore ways family, friends and health professionals can facilitate help seeking behaviours.

Design
A qualitative study which explored: 'experiences after having a baby', 'recognition of symptoms', 'seeking help', 'treatment experiences and options' and 'ideal treatment'.

Setting
Participants were recruited from either hospital based outpatient PND treatment programs or community based mutual support programs.

Subjects
Forty women experiencing PND and either receiving treatment or attending support groups.

Main Outcome Measure
To gain an insight into the ways women experience PND and perceive their distress, and how this influences their beliefs and attitudes towards acknowledging their distress and seeking treatment.

Results
Findings suggest the lived experience of PND and associated attitudes and beliefs result in significant barriers to accessing help. Eight theme clusters were identified: expectations of motherhood; not coping and fear of failure; stigma and denial; poor mental health awareness and access; interpersonal support; baby management; help-seeking and treatment experiences and relationship with health professionals.

Conclusion
Implications for improved identification and management include helping health professionals to be aware of the personal and societal barriers preventing mothers from acknowledging their distress. Media campaigns may also be helpful in challenging community views of PND, as well as highlighting the range of treatment options available to mitigate concerns over medical/pharmacological approaches.

INTRODUCTION

Postnatal mood disorders have a high prevalence, affecting around 15% of women (Leahy-Warren and McCarthy 2007), and potentially serious consequences for maternal, partner and infant well-being (Milgrom et al 2006; Milgrom et al 2004; Hay et al 2001; Murray and Cooper 1997; Milgrom and McCloud 1996). The use of screening tools such as the Edinburgh Postnatal Depression Scale (EPDS) has gained increased popularity (Buist et al 2006; Austin 2003) as a means of identifying women who are distressed postnatally. However, even when identified, women are often reluctant to accept a clinical diagnosis that labels them as 'depressed' (Buist et al 2005; Whitton et al 1996; McIntosh 1993).

The reasons behind this attitude are varied. In a survey conducted as part of the Australian beyondblue National PND Program, 36% of women recognised depressive symptoms in a hypothetical case compared to 80% of general practitioners (Buist et al 2005), suggesting poor recognition of symptoms as a major factor. Other beliefs and attitudes that might contribute have emerged in a number of studies: heightened feelings of failure or of never recovering, uncaring and unknowledgeable health professionals, unsupportive partners and families, perceived ramifications of being identified as mentally ill, minimising of symptoms, stigma/fear of being labelled as mentally ill and attributing feelings of distress to psychosocial issues such as loss of freedom, financial pressures and housing issues (Carter et al 2005; Ugarriza 2002; Tam et al 2002; Whitton et al 1996).

Whilst there has been a number of studies that have explored the lived experience of depression and provided a rich description of the despair experienced (Beck 1992), current research directly asking women about barriers and facilitators to accessing help appropriate to their mental health needs is sparse. To our knowledge only one other study exists addressing these issues, in a Canadian population (Sword et al 2008). A number of questions remain unanswered including how women's experience of

PND and the related beliefs and attitudes influences their choice to seek help, and how family, friends and health professionals can facilitate help seeking behaviours.

The aim of the current study was to explore in an Australian population barriers to care by asking women who are experiencing PND and who have accessed treatment and support services how they recognised and acknowledged their depression; how being depressed affected their ability to actively seek help; what sort of help they wanted and why and how the attitudes of health professionals, friends and family, and the general community influenced the type of treatment sought.

METHOD

Focus groups were used to collect qualitative insights into women's perceptions of their PND experience. This methodology has been used in a number of previous studies to explore the lived experience of PND (Carter et al 2005; Ugarriza 2002; Tam et al 2002; Whitton et al 1996). Focus group methodology is an effective way for women to explore personal experiences in a non-threatening environment and allows a naturalistic collection of qualitative data (Holstein and Gubrium 2003). This approach is also valuable where the goal is to elicit conversation from participants and to explore sensitive issues or where information of this nature may be revealed (Leask et al 2001; Krueger and Caseey 2000).

Participants (n = 40) were recruited from either:

- outpatient depression treatment programs offered by the Infant Clinic, Parent-Infant Research Institute, Austin Health, or the Northpark Private Hospital Mother-Baby Unit and Day Program. These units are located in metropolitan Melbourne, Australia.

- community-based mutual support programs located in cities around the greater Melbourne metropolitan area and a large rural centre of Victoria.

This recruitment approach was undertaken to ensure inter-group diversity via involvement of women

seeking assistance through both public and private, as well as urban and rural health providers, as it has been demonstrated there are differences in the experiences of women accessing these services (Lane et al 2001; Griepsma et al 1994).

The focus groups lasted a maximum of 90 minutes and took place between November 2005 and March 2006. They were conducted by two facilitators. A discussion guide (see table 1) was developed based on a comprehensive literature review and clinical experience of the investigators and modified as the study progressed (e.g. to clarify the intent of a question). This guide was used to ensure consistent coverage of the topics and questions were phrased in a language and style that participants would easily understand.

Table 1: Discussion Guide

Topic	Aim	Example Questions
Experiences after having last baby	To obtain the context for each participant and raise the topic of depression	What was it like/how did it feel to be expecting a baby?
		What expectations about parenthood did you have during your pregnancy?
		How did your partner/family feel about your pregnancy? What expectations did they have?
Self recognition of symptoms	To explore how depression was recognised	Did you ever think about depression following the birth of your baby?
		Did your midwife, obstetrician or antenatal class ever discuss depression during pregnancy and early parenthood?
		How did you feel telling your partner, family and friends about how you were feeling? Why/how long did it take to tell them?
		Did you feel that some of the things you were experiencing were normal?
		How do you think the media views women with postnatal depression and how does this affect you?
Seeking help	To explore barriers to seeking help when depressed	How much do you think your mood and the way you were feeling affected your motivation to seek help?
		How much do you think the depression itself contributed to your way of dealing with your problem
		Do you think your symptoms made it harder for you?
		Would you have done things differently if your partner or relative had taken responsibility for your help seeking?
		If others recognised your problems would this have made a difference?
Treatment experiences	To explore experiences with treatments	Describe some of the treatment options you sought to help you with your mood. What was appealing about these options? What did you think they would involve?
		What barriers were there to getting treatment/support you want?
		Did you try to access help for yourself through a service for your baby eg GP visit for baby or MCHN visit for baby?
Ideal treatment	To identify the ideal treatment experience	Why do you prefer one type of treatment/support over another?
		For the treatment/support you do like, what is it about them that make them appealing? For the treatment/support you dislike, what is it about them that they dislike?
		Do you think it would be easier to seek treatment if someone came to see you in your home?
		Would you rather access information about depression from someone in person, from the internet or from a written brochure?
		Should partners be more involved in assisting you to find help? What support do they need to be able to do this?

Participants were encouraged to respond with whatever level of detail they felt comfortable and issues that arose or were important to participants, but not included in the guide, were followed up and discussed (Krueger 1998). Questions were formulated to reduce socially desirable responses and allow participants to express their opinions in a way that would make them feel safe (Fisher 1993). Clarifying questions were asked whenever meaning of a response was not clear.

Interpretative phenomenological analysis was used to analyse the data (Smith et al 1999). This process was selected as it allows the researcher to construct an understanding of participants' experiences through their (the participants') personal account, rather than an attempt to find causal explanations or produce an objective description (Smith and Osborn 2008). Thus, it is dynamic research process involving both the participant's experience and the researcher's values and beliefs to assist in understanding and making sense of the lived experience (Reid et al 2005; Shaw 2001).

Interviews were tape recorded with the participants' permission and supplemented with hand written notes. Audio recording of the group discussion was transcribed verbatim. Each transcript and written notes taken during each group (for example, what was said and what was meant in terms of the context, who said it, what came before, unspoken body language and silences), was read and reread to facilitate familiarisation with the content and to begin to understand the women's accounts of their experiences (Smith and Eatough 2006).

Passages and paragraphs were reviewed within the context of the interview to identify any major themes, the intent of the participant's response or any phrases, words, terms or descriptions that illustrated recurring patterns of experience. Statements were organised into logical sub themes which were then aggregated into theme clusters. These theme clusters were used to provide a description of the lived-experience. Themes that overlapped or had similar content were merged. Transcripts and themes were discussed and agreement was reached as the analysis proceeded. Potential variations between different focus groups (eg severity of symptoms, age, treatment phase, location etc.) were assessed to determine the relative importance to each theme cluster.

The resultant theme clusters were checked against the original description in each transcript to maximise objectivity and allow refinement of themes or to highlight relationships between clusters. This process was designed to ensure the developing analysis was systematic and data supported the results. Results are presented to illustrate key components of the women's experiences.

RESULTS

A summary of the participant's age, demographic profile and mental health status at the time the interviews were conducted is provided in table 2. Eight main themes were identified: expectations of motherhood; not coping and fear of failure; stigma and denial; poor mental health awareness and access; interpersonal support; baby management; help-seeking and treatment experiences and relationship with health professionals.

Expectations of Motherhood

Many of the women identified a major difference between their expectations and the reality of becoming a parent. They struggled with the transition to becoming a parent and fulltime carer of an infant. Often the joy experienced in the first few days after birth, rapidly vanished once the baby was taken home. Comments from the women indicated many struggle with the 'loss of life as it used to be' (ie before the baby was born) and feel they have lost control over their lives. Difficulties reconciling the anticipated 'perfect' life with their fragile emotional state, especially when women were not expecting to experience problems with adjusting to motherhood was also a major source of distress: *'when you've got a beautiful baby, you've got a beautiful home, why would you be sad?'* (Private hospital focus group).

Many women, before delivery, perceived motherhood to be effortless, they should automatically know how to care for their baby and immediately and continually enjoy being a mother: *'that's how we're told everybody does it. It's so natural to everybody isn't it? I mean as a woman, it's natural to be a mother…it's a fundamental thing that women should do'* (Private hospital focus group)

Not Coping and Fear of Failure

One of the most often repeated comments from women was a need to be seen to be, 'keeping up appearances' - the facade or image of being seen to be able to cope with the demands of parenthood. This stemmed from a desire to not, 'be seen as a failure' or 'as being different from others'. An idealised comparison with other mothers, either real or media images, reinforced the notions of not fitting-in or a sense of failure should the ability to cope be compromised. Many women had very high expectations of themselves, were very proud and felt significant guilt at not being 'able to cope', 'failing at parenting' or blamed themselves when not able to live up to their own expectations or that of others.

When parenting difficulties were encountered, women felt they entered a downward spiral and completely centred on one aspect of the mothering experience. Problems quickly generalised to all aspects of infant care: *'once you failed at one thing, for example you thought you'd failed at your breastfeeding, you then decided you were going to fail at everything. So it kind of just circles off'* (Community focus group).

Stigma and Denial

Women's fear about acknowledging emotional problems and the stigma associated with this, real or imagined, was a constant theme. Women repeatedly spoke of being scared of being depressed and this fear was often caused by a perception they should be, or needed to be seen to be, 'strong and organised'. Women believed that PND, and depression in general, 'can't happen to me' and, 'other people get it'. It was also acknowledged the stigma of being a bad mother was worse than being labelled depressed. This often resulted in women denying how bad they felt.

Poor Mental Health Awareness and Access

Not being able to identify or distinguish between the normal emotional and psychological adjustment associated with parenthood and when they were 'depressed' was identified by women as a major barrier to seeking assistance: *'to me depression is when you can't get out of bed, like you physically cannot function. And I'm like…I can get myself out of bed, I can get myself up and get dressed, but then there's days that I can't… And then I have to drag myself through the day and then spend the rest of the time thinking about how little I've done or how bad I've spoken to the kids'* (Public hospital focus group)

On reflection, women believed antenatal education classes should include specific sessions on emotional changes in the first few months postnatal and information about how to seek help. However, when emotional health issues were discussed in antenatal class, women acknowledged they often did not listen or were disinterested: *'during the antenatal class when postnatal depression was talked about, you kind of switched off for that little 15 minutes. Because at the time you think, well that's not going to be me'* (Private hospital focus group).

Women often did not know what services were available to assist them or how these could meet their particular needs. This uncertainty was exacerbated by the symptoms of depression with women reporting they felt completely overwhelmed by their emotions *'everything just got too much for me, and I couldn't go anywhere to get any help'* – and lacking motivation and positive decision making capabilities. Those women who did seek help remarked it was not easy to find. Some of the barriers identified included: difficulty in accessing information on line, the lack of a 24hour telephone support line specific for postnatal mood disorders, long waiting times before being able to access existing telephone support services, perceived inappropriateness of support services and lack of cohesion between the public and private sector services. A lack of continuity of care between antenatal and postnatal services was also highlighted.

Interpersonal Support

Many women admitted the power balance within their partner relationship changed once they had their baby and began experiencing emotional distress. Once difficulties were experienced, the ability to focus on both the needs of her partner and of the baby diminished, and she relied on him taking up 'some of the slack'. For many women this put significant strain on their relationship and this was, at times, difficult to emotionally and physically sustain: *'I rang my husband to say you have to come in now, I don't care you haven't slept, I'm not coping. So it was huge for him to see me not being strong, when I'm the strong one, and I'm strong for him'* (Private hospital focus group).

Family background was also identified as having an impact on both acknowledgment of emotional health needs and help seeking behaviour. In families described as having negative attitudes to help seeking, the understanding was that it was the role of families to manage difficulties. Women were expected to only talk to their family and were limited from seeking wider assistance: '*my dad said why do you have to keep (saying you're not OK) – he didn't want me painting this impression to everyone that things weren't right with me. And so when I came in here...I even lied to my family about why I came in here'* (Private hospital focus group).

Baby Management

Difficulties in baby management were identified as a major precipitating factor for feelings of parenting inadequacy. There was also the belief if mothers were unable to find a solution to a baby management problem, this reflected negatively on their parenting ability and they were a 'failure as a parent'.

Perceived patronising attitudes of health professionals also undermined the confidence of mothers and their parenting abilities and a number of women felt immense frustration with the support and advice given. When professionals themselves had problems managing the baby women felt relief and vindication: *'even the nurse that I felt had the greatest rapport with ... said I don't know what to do, I can't do it,*

what do you do at home?...you get to the point where these people who've been doing it for 25years can't deal (with the child) and I've been doing this for six months, what am I supposed to do now?...so it was a relief as they can't do it either, so it's not just me' (Private hospital focus group).

When asked about the type of baby management advice supplied, a common response was women struggled to utilise this advice, as they often received conflicting information, even from the same health service provider.

Help Seeking and Treatment Experiences

Women acknowledged a number of other factors, aside from those already highlighted, as significant inhibitors to help seeking: poor sleep, physical discomfort from delivery complications, the inability to think clearly and logically, lack of motivation, changes in perception of body image and distinguishing between the symptoms and consequences of depression.

Views regarding the help provided by general practitioners (GPs) were mixed. Many women were ambivalent whilst others remarked that in many instances, GPs attempted to normalise feelings and provide reassurance, rather than actively treat or manage a women's mood. When this occurred, this exacerbated feelings of low self esteem and guilt at being unable to cope.

When medication was offered as a treatment option, many women found it extremely difficult to weigh up the risks and/or benefits of medication in relation to the severity of their symptoms and the potential side effects to their infant. Women felt shame at not being able to cope on their own and stigmatised for taking medication: *'that was another issue for me really to get over, was the fact that I did need help in the form of that medication. It was very hard for me to accept that, and I still feel very bad sometimes that I have to take it. There's been a couple of times over the last three years that I've just stopped taking it because it's made me feel so bad that I'm taking medication'* (Community focus group).

Table 2: Details of the focus group participants (n= 37$^\Psi$)

Age: Mean in years (range)	34 (27-47)
Marital status	
Married	28 (75.6%)
De facto	2 (5.4%)
Separated	6 (16.2%)
Single	1 (2.7%)
Income	
Up to $20,000	5 (13.5%)
$20,001 - $40,000	2 (2.7%)
$40,001 - $60,000	4 (10.8%)
$60,001 - $80,000	10 (27%)
Greater than $80,000	15 (40.5%)
Not divulged	1 (2.7%)
Number of children (mean ± SD)	1.6 ± 0.9
Number of pregnancies (mean ± SD)	2.3 ± 1.4
Perceived level of personal support	
Rarely/Not at all	6 (16.2%)
Occasionally	8 (21.6%)
Sometimes	7 (18.9%)
Yes, most of the time	11 (29.7%)
Yes, all of the time	5 (13.5%)
Reason for seeking assistance†	
Feelings of depression/not coping	33 (89.1%)
Your sleeping difficulties	16 (43.2%)
Baby sleeping difficulties	19 (51.4%)
Feeling isolated	16 (43.2%)
Financial difficulties	6 (16.2%)
Baby crying	16 (43.2%)
Relationship difficulties	14 (37.8%)
Baby feeding	19 (51.4%)
Moving House	5 (13.5%)
Other	11 (29.7%)
EPDS Score	
Mean ± SD	13.9 ± 6.9
Median	14

$^\Psi$ Three participants did not return questionnaires; total participants n = 40

† Percentages may be greater than 100, as women may have selected more than one reason

Relationship with Health Professionals

A strong theme to emerge was maternal child health nurses (MCHNs) should play a vital role in identifying and managing postnatal distress. An especially strong belief amongst mothers was MCHNs should 'see it (depression) coming, recognise it and take control'. Many women stated the MCHN was the most helpful of all health professionals.

Many women said they would not talk to their health professionals until 'the time is right'. Many stated they needed to be at the 'right stage' before initiating discussion. Certain behaviours of health professionals negatively impacted on the ability of women to actively seek assistance for their distress: *'there's just nothing that's done to help you with the emotional side of becoming a mum and childbirth. One maternal nurse just told me to suck it up. Babies scream. That was helpful!!'* (Private hospital focus group). If health professionals did not validate the extent of distress but tried to normalise or dismiss it, women felt they were being told to 'shut-up'. Validation was seen by women as vital as it gives them 'permission to speak' about their feelings. If this did not occur, women remained silent and attempted to cope as best they could.

Women listed the key attributes of the ideal health professional as: empathy, kindness, knowledge of what is available, good listening skills, availability, able to actively assist the mother (eg making telephone calls on behalf of the mother, making home visits) and nurturing through, 'mothering the mother'. Women also wanted their health professional to have an on going relationship, even when they have been referred or sought treatment elsewhere. There is a need to provide continuity of care for the woman so she can feel held by her community. Ultimately women are seeking support and understanding from *'the right person, at the right time, with the right options'.* (Community focus group)

DISCUSSION

This qualitative study of women's experiences of depression suggests that there are significant beliefs and attitudes that form barriers to accessing

help. All of the mothers involved in this study were participating in treatment programs and this suggests because they had accepted their distress and had sought assistance, they were perhaps more willing to discuss elements of shame, disappointment and denial they had to overcome as well as negative personal attitudes toward acknowledging and discussing mental health concerns. Eight theme clusters were identified, and some of these interrelated as described below.

'Myths of Motherhood" and 'Not Coping or Fear of Failure'

Findings from this study support the negative impact on women of 'myths of motherhood' which are prevalent within society (Knudson-Knight and Silverstein 2009; Tammentie et al 2004) and the belief that becoming a mother is a natural event, with the mother automatically and unconditionally loving her infant and inherently being able to meet her child's needs. Women, who perceive themselves to fail at these tasks, completely lose confidence and feel stigmatised as a poor mother or not loving or caring for their infant. As in this study, others have reported that the lived experience of depression includes obsessive thoughts, overwhelming loneliness of feeling alone in this experience and feelings of failure (Beck 1992). Although it may be considered an insurmountable task, it appears vital that these community myths are deconstructed to reduce both the pressure to conform and the stigma of mental illness during the postnatal period. Others have also suggested that expanding the social constructs of motherhood is required to overcome idealised notions of motherhood and standards of perfection beyond the reach of most mothers (Dougals and Michaels 2004; Mauthner 1999). Both these approaches could begin to be addressed through the development of media campaigns which target these myths, educate the wider community on the challenges women and families face when making the adjustment early parenthood and emphasise women who seek help are not a '...failure...' or '...poor parent...'.

'Mental Health Awareness and Access'; 'Help seeking and Treatment Experiences'; 'Stigma and Denial'

The findings of this study reinforce the notion of maternal ignorance of PND (Sword 2008), coupled

with feelings of stigma and denial. As in other studies, many women found it difficult to distinguish their distressed mood from normal psychological adjustment in the postpartum period (Hanley and Long 2006; Hall and Wittkowski 2006) and were likely to dismiss or deny depressive symptoms as '...other people get it...'. It is interesting to attempt to reconcile this observation with the finding non-depressed mothers also experience negative thoughts and emotions during the postpartum period (Hall 2006; Nicolson 1999). This has important implications for the way health professionals discuss these issues with women. Clinicians need to strike a balance which acknowledges the extent of the distress and also explains how common thoughts such as fear, failure, inadequacy or disappointment are. For some women acknowledging the emotional changes associated with childbirth and becoming a mother and providing simple reassurance can be helpful (Chew-Garden et al 2008; Sit and Wisner 2005).

This does not mean that feelings of postnatal distress should be minimised, but seen to lie in a continuum. A key message women conveyed is not to minimise the distress they report. When feelings are not validated or are normalised to the extent that distress is down played, they exacerbate feelings of inadequacy and frustration. Clinicians themselves may need to be better trained in risk assessment/identification so as to distinguish when reassurance and support are adequate, to when specialised intervention is needed.

'Health Professionals'

Whilst women wanted their mood managed and believed a sensitive health professional who took control and managed their depression '...at the right time...' was needed, there was an ambivalence about assuming the role of a '...patient...' in order to obtain the necessary medical and social support. The negative consequences of this was women felt they needed to accept being labelled - but this caused problems, as reinforced by this study and others, in relation to the stigma associated with depression and mental illness and the fear of being labelled an unfit mother (Sword 2008; Hall 2006; Edwards and

Timmons 2005; Ugarriza 2002; Wood and Meigan 1997; Stern and Kruckman 1983).

This questions, to some degree, the best terms to use to describe emotional distress in the postnatal period (Chew-Garden et al 2008; McConnell et al 2005). A 'postnatal depression' diagnosis, whilst allowing women to receive treatment and support, also has the potential to heighten anxiety and perceived stigma and thereby may contribute to reluctance to seek help. Given the multiple risk factors for PND (Milgrom et al 2008), once a woman is identified as depressed, the focus needs to rapidly move the spotlight from the diagnostic label to understanding the individual mother's reactions to the transition to parenthoodand the diverse range of causes for her emotional distress, as well as an experience impacting on the entire family dynamic. Mothers need to recognise and reconcile their feelings with their new identity as a 'mother' and reflect on the factors contributing to the depressive disorder.

Ultimately, improving understanding of the triggers of distress may help women to overcome negative attitudes associated with poor postnatal mental health and reduce their reluctance to seek, and accept, help.

We are aware that mother's health beliefs and their sense of self efficacy (about treatment) (Bandura 2004) will determine which treatments they will comply with. Beliefs about treatment options will impact the types of interventions sought and accepted (Dennis and Lee 2006; Sword 2008). The findings of this study also confirm the ambivalence of women to the use of medication as a treatment option (Dennis and Lee 2006; Boath et al 2004; McIntosh 1993). These issues need to be considered by health professionals, in particular GPs and psychiatrists – although it may be easy to simply develop resource material with this information, it is more important professionals consider how to effectively work with ambivalence in their patients and to understand the attitudes that cause this response.

Through increased understanding and appreciation of the maternal beliefs associated with these emotional changes and how they intersect with the lived experience, health professionals may be better placed to help mothers restructure their perceptions about the disorder and reduce stigma.

'Interpersonal Support'

Another key message was that the role of partners and families in providing support and facilitating help seeking behaviour. In general, partners and families were felt to be supportive but consistent with other studies (Di Mascio et al 2008; Hanley and Long 2006; Holopainen 2002; Berggren-Clive 1998) women were hesitant revealing they were unable to cope or were experiencing a mental illness fearing shame and embarrassment. Strategies, which emphasise and reinforce utilising support and accessing services, as a normal part of the perinatal journey, are needed. These could assist fathers to better understand their partner's experience, and attitude toward their disorder, and help them to grasp the magnitude of the transformation taking place to their partner, themselves and their relationship. These programs would aim to improve a father's understanding and contribution to pregnancy, birth and early parenting; their role should difficulties arise in maternal recognition of distress and facilitation of help seeking.

HUMAN SUBJECT APPROVAL

This research was approved by the Melbourne Clinic/ HealthScope Research Ethics Committee (Approval Number: 145) and the Human Research Ethics Committee of Austin Health (Approval Number: 02600). It was conducted according to the National Statement on Ethical Conduct in Research Involving Humans (June 1999) developed by the National Health and Medical Research Council of Australia.

All participants were provided with, and given the opportunity to read, a plain language statement before enrolling in the study. All women who agreed to participate signed a consent form before commencement of the focus group sessions. No financial incentives were provided to women to encourage participation.

STUDY LIMITATIONS

The majority of women involved in this study were participating in a structured treatment program for PND. Only a small number (<10) were receiving assistance from a mutual support/community based group. It may be the experiences of women involved in specialist programs are different from those utilising community support or other primary sources of care (eg general practitioner only management or telephone support). We propose further work to address this important distinction.

CONCLUSIONS

The authors are cognisant there is no simple answer in relation to improving the uptake of treatment for PND. Distressed women, isolated at home with their young infants, frequently end up managing their mental health problems on their own and without appropriate support or are offered treatment they are ambivalent about. It is vital for us to develop a range of options and approaches to assist women at risk of depression, and their families (Sword et al 2008), to ease their suffering and to avoid long term consequences. Strategies need to effectively support women so they can access treatment options they feel comfortable with in a timely manner (Bandura 2004).

Importantly, it is vital there is better understanding of how a mother's lived experience of postnatal mental illness and her associated attitudes and beliefs that may form barriers to her help seeking. This understanding allows those involved in the care and treatment of these mothers to be better placed to help them restructure their perceptions about the disorder.

Findings of this study highlight the need for women themselves and their families to be better able to understand, and recognise PND (which may help them be prepared to accept support or seek assistance) and the need for health professionals to be more aware of the personal and societal attitudes which prevent women from acknowledging their distress (Chew-Garden et al 2008; McConnell et al 2005; Marks et al 2005). In particular, health

professionals need better appreciation of how their response to women's distress may heighten maternal feelings of guilt and failure and how this impacts on help-seeking behaviour (Appleby et al 2003; Simons et al 2001). Women in this study suggest a key facilitator to help seeking is a professional who is empathic, does not attempt to normalise or minimise feelings, helps women recognise depression is not a sign of failure and recognises that the factors contributing to their distress are likely to stem from a broad range of personal and psychosocial influences.

REFERENCES

Appleby, L., Hirst, E., Marshall, S., Keeling, F., Brind, J., Butterworth, T. and Lole, J. 2003. The treatment of postnatal depression by health visitors: Impact of brief training on skills and clinical practice. *Journal of Affective Disorders,* 77(3):261-266.

Austin, M. 2003. Psychosocial assessment and management of depression and anxiety in pregnancy. *Australian Family Physician,* 32(3):119-126.

Bandura, A. 2004. Health promotion by social cognitive means. *Health Education Beliefs,* 31(2):143-164.

Beck, C.T. 1992. The lived experience of postpartum depression: A phenomenological study. *Nursing Research*, 41(3):166-70.

Berggren-Clive, K. 1998. Out of the darkness and into the light: Women's experiences with depression after childbirth. *Canadian Journal of Community Mental Health,* 17(1):103-120.

Boath, E., Bradley, E. and Henshaw, C. 2004. Women's views of antidepressants in the treatment of postnatal depression. *Journal of Psychosomatic Obstetrics and Gynaecology,* 25(3-4):221-233.

Buist, A., Bilszta, J., Barnett, B., Milgrom, J., Condon, J., Hayes, B. and Brooks, J. 2005. Recognition and management of perinatal depression in general practice: a survey of GPs and postnatal women. *Australian Family Physician,* 34(9):787-790.

Buist, A., Bilszta, J., Milgrom, J., Barnett, B., Hayes, B. and M-P, A. 2006. Health Professional's knowledge and awareness of perinatal depression: Results of a national survey. *Women and Birth,* 19(1):11-16.

Carter, F.A., Carter, J.D., Luty, S.E., Wilson, D., Frampton, C.M. and Joyce, P.R. 2005. Screening and treatment for depression during pregnancy: a cautionary note. *Australian and New Zealand Journal of Psychiatry*, 39(4):255-261.

Chew-Garden, C., Chamberlain, E., Turner, K., Folkes, L., Caulfield, L. and Sharp, D. 2008. GPs' and health visitors' views on the diagnosis and management of postnatal depression : a qualitative study. *British Journal of General Practice*, 58(548):169-176.

Dennis, C. and L.Chung-Lee. 2006. Postpartum depression help-seeking barriers and maternal treatment preferences: a qualitative systematic review. *Birth* 33(4):323-331

Di Mascio, V., Kent, A., Fiander, M. and Lawrence, J. 2008. Recovery from postnatal depression: A consumer's perspective. *Archives of Women's Mental Health*, 11(4):253-257.

Dougals, M. and Michaels, M. 2004. The mommy myth: the idealization of motherhood and how it undermines women. New York, The Free Press.

Edwards, E. and Timmons, S. 2005. Qualitative study of stigma among women suffering postnatal illness. *Journal of Mental Health Administration*, 14(5):471-478.

Fisher, R. 1993. Social desirability and the validity of indirect questioning. *Journal of Consumer Research*, 20(2):303-315.

Griepsma, J., Marcollo, J., Casey, C., Cherry, F., Vary, E. and Walton, V. 1994. The incidence of postnatal depression in a rural area and the needs of affected women. *The Australian Journal of Advanced Nursing*, 11(4):19-23.

Hall, P. 2006. Mothers' experiences of postnatal depression: an interpretative phenomenological analysis. *Community Practitioner*, 79(8):256-260.

Hall, P. and Wittkowski, A. 2006. An exploration of negative thoughts as a normal phenomenon after childbirth. *Journal of Midwifery and Women's Health*, 51(5):312-330.

Hanley, J. and Long, B. 2006. A study of Welsh mothers' experiences of postnatal depression. *Midwifery*, 22(2):147-157.

Hay, D., Pawlby, S., Sharp, D., Asten, P., Mills, A. and Kumar, R. 2001. Intellectual problems should by 11-year-old children whose mothers had postnatal depression. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(7):871-889.

Holopainen, D. 2002. The experience of seeking help for postnatal depression. *Australian Journal of Advanced Medicine*, 19(3):39-44.

Holstein, J. and Gubrium, J., Eds. 2003. Inside Interviewing. Thousand Oaks, California, Sage Publications.

Knudson-Knight, C. and Silverstein, R. 2009. Suffering in silence: a qualitative meta-data-analysis of postpartum depression. *Journal of Marital and Family Therapy*, 35(2):145-158.

Krueger, R. 1998. Developing Questions for Focus Groups. Thousand Oaks, California, Sage Publications.

Krueger, R. and Caseey, M. 2000. *Focus Groups: A Practical Guide for Applied Research.* Thousand Oaks, California, Sage Publications.

Lane, B., Roufeil, L.M., Williams, S. and Tweedie, R. 2001. It's just different in the country: Postnatal depression and group therapy in a rural setting. *Social Work in Health Care*,34(3-4):333-348.

Leahy-Warren, P. and McCarthy, G. 2007. Postnatal depression: prevalence, mothers' perspectives, and treatments. *Archives of Psychiatric Nursing*, 21(2):91-100.

Leask, J., Hawe, P. and Chapman, S. 2001. Focus group composition between natural and constructed groups. *Australian and New Zealand Journal of Public Health*, 25(2):152-154.

Marks, L., Mcconnell, J. and Baker, M. 2005. Broader skills for working with perinatal depression. *Community Practitioner*, 78(8):280-282.

Mauthner, N. 1999 "Feeling low and feeling really bad about feeling low": women's experiences of motherhood and postnatal depression. *Canadian Psychology*, 40(2):143-161.

McConnell, J., Baker, M. and Marks, L. 2005. Experiencing a dilemma – accounts of working with PND. *Community Practitioner*, 78(7):251-254.

McIntosh, J. 1993. Postpartum depression: women's help-seeking behaviour and perceptions of cause. *Journal of Advanced Nursing*,18(2):178-184.

Milgrom, J., Gemmill, A.W., Bilszta, J.L., Hayes, B., Barnett, B., Brooks, J., Ericksen, J., Ellwood, D. and Buist, A. 2008. Antenatal risk factors for postnatal depression: a large prospective study. *Journal of Affective Disorders*, 108(1-2):147-157.

Milgrom, J., Ericksen, J., McCarthy, R. and Gemmill, A. 2006. Stressful impact of depression on early mother-infant relations. *Stress and Health*, 22(4):229-238.

Milgrom, J., Gemmill, A. and Westley, D. 2004. The mediating role of maternal responsiveness in some longer-term effects of postnatal depression on infant development. *Infant Behavior and Development*, 27(4):443-454.

Milgrom, J. and McCloud, P. 1996. Parenting stress and postnatal depression. *Stress Medicine*, 12(3):177-186.

Murray, L. and Cooper, P. 1997. Effects of postnatal depression on infant development. *Archives of Disease in Childhood*, 77(2):99-101.

Nicolson, P. 1999. Loss, happiness and postpartum depression: the ultimate paradox. *Canadian Psychology*, 40(2):162-178.

Reid, K., Flowers, P. and Larkin, M. 2005. Exploring the lived experience. *The Psychologist*, 18(1):20-23.

Shaw, R. 2001. Why use interpretative phenomenological analysis is health psychology? *Health Psychology Update*, 10(4):48-52.

Simons, J., Reynolds, J. and Morison, L. 2001. Randomised controlled trial of training health visitors to identify and help couples with relationship problems following a birth. *British Journal of General Practice*, 51(471):793-739.

Sit, D.K.Y. and Wisner, K. 2005. Decision making for postpartum depression treatment. *Psychiatric Annals*, 35(7):577-585.

Smith, J. and Eatough, V. 2006. Interpretative phenomenological analysis. Research methods in psychology. G. Breakwell, S. Hammond, C. Fife-Schaw and J. Smith. London, Sage: 322-341.

Smith, J., Jarman, M. and Osborn, M. 1999. Doing interpretative phenomenological analysis. Qualitative Health Psychology: Theories and Methods. M. Murray and K. Chamberlain. London, Sage Publications: 218-240.

Smith, J. and Osborn, M. (2008). Interpretative phenomenological analysis. Qualitative psychology: a practical guide to research methods. J. Smith. London, Sage:53-80.

Stern, G. and Kruckman, L. 1983. Multi-disciplinary perspectives on post-partum depression: an anthropological critique. *Social Science and Medicine*, 17(15):1027-1041.

Sword, W., Busser, D., Ganann, R., McMillan, T. and Swinton, M. 2008. Women's care-seeking experiences after referral for postpartum depression. *Qualitative Health Research*, 18(9):1161-1173.

Tam, L., Newton, R., Dern, M. and Parry, B. 2002. Screening women for postpartum depression at well baby visits: resistance encountered and recommendations. *Archives of Women's Mental Health*, 5(2):79-82.

Tammentie, T., Paavilainen, E., Astedt-Kurki, P. and Tarkka, M.-T. 2004. Family dynamics of postnally depressed mothers - discrepancy between expectations and reality. *Journal of Clinical Nursing*, 13(1):65-74.

Ugarriza, D. 2002. Postpartum depressed women's explanation of depression. *Journal of Nursing Scholarship*, 34(3):227-233.

Whitton, A., Warner, R. and Appleby, L. 1996. The pathway to care in post-natal depression: women's attitudes to postnatal depression and its treatment. *British Journal of General Practice*, 46(408):427-428.

Wood, A. and Meigan, M. 1997. The downward spiral of postpartum depression. *Journal of Maternal/Child Nursing*, 2(6):308-316.

The influence of personal characteristics on student nurse health attitudes

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KEY WORDS

Student nurses, personal characteristics, health attitudes, feelings, beliefs, intentions to act.

ABSTRACT

Objectives
To measure student nurses' attitudes toward health and identify the influence of demographic characteristics and psychological wellbeing on these attitudes.

Design
A cross-sectional survey between April and June 2006.

Setting
An Australian University in South-East Queensland.

Subjects
369 students enrolled in the Bachelor of Nursing, Pre-Registration Program.

Main outcome measures
Attitudes to health, measured by the Health Attitude Scale-form B and psychological wellbeing, measured by the General Health Questionnaire-28.

Results
Student nurses were generally positive in their 'feelings', 'beliefs' and 'intentions' towards health behaviour. There was a significant difference in 'feelings' towards health by year of BN program ($F_{(2,336)} = 3.128$, $p<0.05$), with respondents becoming more positive as they progressed through their study. Those not in employment had more positive 'feelings' towards health than those in employment ($F_{(1,366)} = 5.642$, $p<0.05$) and the better reported psychological health, the more positive the 'feelings' ($F_{(2,366)} = 3.862$, $p<0.05$). Older age groups reported more positive health 'beliefs' ($F_{(3,350)} = 4.414$, $p<0.01$) and 'intentions to act' ($F_{(3,350)} = 2.986$, $p<0.05$). Males were more positive than females in their health 'beliefs' ($F_{(1,337)} = 4.246$, $p<0.05$).

Conclusions
Individual characteristics influenced student nurses' attitudes towards health and measurement which incorporates 'feelings', 'beliefs' and 'intentions to act' as components of health attitudes provide a clearer picture of where these influences lie. Further research is advocated to replicate these findings in a broader sample and determine their implications in the design of primary prevention strategies.

INTRODUCTION

Medical advances in modern society have reduced the impact of infectious disease in industrialised nations and instead chronic disease, lifestyle and human behaviour have taken the mantel as the main contributing factors in cause of death (Torabi et al 2004). A greater effort to reduce and prevent the occurrence of disease, disorders and injuries is keenly recognised and attempts are being predominantly targeted through primary preventions including health promotion, education and protection. These prevention strategies are increasingly focused on changing attitudes as research has shown attitudes are central in determining health related behaviours and lifestyle choices (Torabi et al 2004). However, the exact nature of the attitude behaviour relationship is complex and has been the focus of research interest for a number of decades. Rosenberg and Hovland (1960) were first to posit the Three Component Theory of Attitudes, which holds that attitudes are multidimensional and comprised of: 'beliefs' (cognition); 'feelings' (affect); and 'intentions to act' (behavioural intention). A number of different theories have since been postulated including The Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980) and The Theory of Planned Behaviour (TPB) (Ajzen 1988). Both theories argue that a person's 'intention to act' is the biggest influence on subsequent behaviour and is central in the attitude behaviour relationship. Much research exists, including a number of large meta-analyses (Armitage and Connor 2001; Hausenblas et al 1997; Godin and Kok 1996; Ajzen 1991; Van den Putte 1991), which supports TRA and TPB as good means of understanding the intention behaviour relationship. However, the importance of 'feelings' should not be underestimated, as psychological evidence has shown these are typically the first reaction to a situation and subsequently guide the cognitive processing, intention to act and behaviour (Loewenstein et al 2001; Slovic et al 2004).

Nurses' Attitudes to Health

Nurses are the largest professional group within healthcare and are often viewed as public role models and health advocates (Smith and Legget 2007). This view rests on the assumption that nurses will have positive attitudes towards health, be better at self care and effective at promoting healthy lifestyle choices to others. This however, is not necessarily so with studies revealing that some nurses regularly engage in unhealthy practices that can compromise their ability and desire to promote healthy lifestyles (Smith and Legget 2007; Purcell et al 2006). There are a limited number of studies that have sought to explore nurses' attitudes towards health and those that have tend to focus on attitudes towards specific health related behaviours and not on the measurement of health attitudes generally (Aalto et al 2005; McCann et al 2005; Clark et al 2004; Callaghan 1999; Nagle et al 1999). In light of this and the privileged position of nurses to act as health advocates, a greater understanding of nurses' attitudes towards health is essential for successful implementation of primary prevention strategies. Furthermore, an understanding of student nurses' attitudes may be useful in designing curriculum to assist in shaping graduates' health attitudes.

Factors Influencing Societal Health Attitudes

Attitudes are multidimensional and influenced by a broad range of factors, with a review of the literature highlighting the following factors as possible key influences.

Age: Studies have found younger people are less concerned about future health issues than their senior counterparts. For example, a study has shown younger cohorts (<34 yrs and 35-54 yrs) believed they were unlikely to experience health hazards, such as blood pressure or heart disease, when compared to people aged 55 or over (Petrovici and Ritson 2006). Another study found experimental involvement in many health threatening activities was regarded as less harmful by teenagers than by adult parents (Cohn et al 1995).

Gender: Men are more likely than women to engage in behaviours that increase the risk of disease, injury and death and they are more likely to adopt attitudes that undermine their health and wellbeing (Courtenay 2003). Women report higher levels of depression,

psychiatric disorders, distress and a variety of chronic illnesses than men (Pryjmachuk and Richards 2007) but have stronger beliefs they have control over their future health and that personal actions contribute to good health (Courtenay 2003).

Employment in Health Care Settings: Student nurses are often employed in health care settings prior to and during their nursing education, typically as assistants in nursing. A Norwegian study (Eriksen 2006) found workload, physical demands, exposure to role conflicts, threats and violence were higher in nursing homes than any other areas where nurses' aides were employed. Positive challenges and control at work was also found to be lower in nursing homes (Eriksen 2006).

Psychological Wellbeing: University students in general tend to experience greater levels of distress when compared to similar non-student populations and nursing students specifically report high levels of distress (Pryjmachuk and Richards 2007; Jones and Johnston 1997). However, there is a paucity of research investigating the potential relationship between the attitudes of nursing students towards health and their psychological wellbeing. A Japanese study investigated the relationship between workers' attitudes towards health, lifestyle and mental health (Irie et al 1997), finding favourable health practices and attitudes towards health might help to maintain positive mental health.

METHOD

Aim

This study aimed to measure the health attitudes of student nurses at an Australian University and identify the potential influence that demographic characteristics and psychological wellbeing have on these attitudes. The study sought to address two research questions:

1. How do student nurses rate their general health attitudes?

2. Which personal and psychological wellbeing characteristics significantly influence student nurses' general health attitudes?

Design

A cross-sectional survey was used to collect data between April and June 2006. This methodology was employed as it enabled health attitudes to be objectively measured on standardised instruments. Ethical approval for the study was granted by the University human research ethics committee.

Sample

All students enrolled in the Bachelor of Nursing (BN), Pre-registration Program at an Australian University were eligible to complete the survey (n=1495). Surveys were completed and returned to a locked box during tutorials, with students informed that involvement was voluntary, responses were anonymous and completion implied informed consent.

Data Collection

Personal Characteristics: The following demographic information was collected about each student nurse who completed the survey: age; gender; marital status; employment status; number of hours in employment; current occupation; previous health employment; and year of BN program.

Health Attitude Scale – Form B (HAS-form B): The HAS-form B (Torabi et al 2004) was developed to measure college students' attitudes towards health. The instrument has 15 items which relate to three subscales: 'feelings regarding health and quality of healthy life', 'beliefs regarding disease prevention and health lifestyle' and 'intentions to act for better health'. A five-point Likert scale, ranging from 'strongly agree' to 'strongly disagree', is used to rate each statement. Negatively worded responses are reversed, with higher total scores on each of the three subscales representing a better attitude towards health. Cronbach's alpha has been reported as 0.87 and the subscales of 'feelings', 'beliefs' and 'intentions to act' have demonstrated good internal consistency (Cronbach's alpha = 0.81, 0.73 and 0.75 respectively). The HAS-form B appears to have been used in limited research (Wang et al 2008). This study, therefore, offers an opportunity to test the instrument in an Australian setting and with nursing students.

General Health Questionnaire (GHQ-28): The GHQ-28 (Goldberg 1978) is a 28 item, self-administered screening instrument that is used to detect psychological distress in clinical and non-clinical settings. In this study the scoring was undertaken according to the simple GHQ scoring method, which involves binary scoring (0-0-1-1) for case identification (Richard et al 2004; Goldberg and Hillier 1979) and the wording of items means that scores do not need to be reversed, thus, the higher the score the better the self-reported psychological wellbeing. The GHQ-28 has been extensively validated and the internal reliability is high (Cronbach's alpha .90) (Hamilton and Schweitzer 2000).

Data Analysis

The Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA), Version 17.0 was used to analyse survey data that were collected. Basic frequencies were established for all survey questions and open responses were coded. Mean scores on the HAS-form B subscales were computed. Factor analysis, with maximum likelihood extraction and direct oblimin rotation, was applied to the data to determine if the HAS-form B 15 items loaded well onto the three subscales. One-way ANOVAs were conducted on the three subscale mean scores to test for differences in responses and for each attitudinal subscale to explore their relationship with demographic variables and psychological wellbeing.

FINDINGS

A total of 379 student nurses completed the survey, resulting in a 25 per cent response rate. However, due to the level of missing data in ten cases (>50%) 369 responses were analysed. As seen in Table 1, the mean age of respondents was 28, with the majority being: female (89.1%); either single (53.8%) or married (25.3%); and employed (74.2%) in a casual/contract (62.3%) or part-time (32.6%) position involving less than 24 hours of work per week (82.8%). Roughly half of the sample reported previous health employment experience (49.3%), namely as either a nursing assistant (54.1%) or an enrolled nurse (19.3%). A greater number of first

year BN students completed the questionnaire (Y1 = 42.0%; Y2 = 28.2%; Y3 = 29.8%) and this was probably related to the higher number of this year group attending tutorials at time of data collection.

Table 1: Sample Characteristics

		(n)	(%)
Gender (n=339)	Female	302	89.1
	Male	37	10.9
Marital status (n=368)	Single	198	53.8
	Married	93	25.3
	Defacto	50	13.6
	Divorced	22	6.0
	Widowed	5	1.4
Year of BN Program (n=369)	Year 1	155	42.0
	Year 2	104	28.2
	Year 3	110	29.8
In employment (n=368)	Yes	273	74.2
	No	95	25.8
Employment status (n= 273)	Casual/contract	170	62.3
	Part-time	89	32.6
	Full-time	9	3.3
	Seasonal	4	1.5
Weekly hours worked (n=273)	1-8 hours	57	20.9
	9-16 hours	106	38.8
	17-24 hours	63	23.1
	25-32 hours	36	13.2
	33-40 hours	10	3.7
	40+ hours	1	0.4
Previous health employment (n=367)	Yes	181	49.3
	No	186	50.7
Age (n=354)	Mean = 28		
	Standard Dev. = ±10.3		
	Range = 17- 59		

General Health Attitudes

An exploratory factor analysis undertaken on HAS-form B found three factors emerged from analysis, which loaded well onto the subscales 'feelings', 'beliefs' and 'intentions to act'. As expected, the correlation matrix suggested that the three factors were interrelated, although the 'intentions to act' factor appeared most dependent of 'feelings' (0.095) and 'beliefs' (0.194).

Student nurses were generally positive in their 'feelings', 'beliefs' and 'intentions' towards health behaviour (see Table 2). There were significant differences in responses on the health attitude subscales. Specifically, there were differences between 'feelings' and 'beliefs' ($F(15,353) = 2.471$, $p<0.01$), 'feelings' and 'intentions' ($F(14,354) = 11.659$, $p<0.001$) and 'beliefs' and 'intentions' ($F(14,354) = 10.448$, $p<0.001$). These differences showed that student nurses had most positive 'feelings' towards health, followed by 'beliefs' and 'intentions to act' (means: 4.3, 4.1 and 4.0 respectively).

Table 2: Mean scores on the HAS-Form B subscales

	Feelings		Beliefs		Intentions to Act	
	(n)	(%)	(n)	(%)	(n)	(%)
'Strongly Agree' (5)	139	37.7	95	25.7	68	18.4
'Agree' (4)	204	55.3	216	58.5	229	62.1
'Undecided' (3)	26	7.0	56	15.2	68	18.4
'Disagree' (2)	0	0	2	0.5	4	1.1
'Strongly Disagree' (1)	0	0	0	0	0	0
Total	369	100	369	100	369	100

Notes to table: Due to rounding, totals may not add up to 100%

Table 3: Means and standard deviations (SD) on the HAS-form B subscales by age, gender, year of BN program, employment and psychological wellbeing

		Feelings		Beliefs		Intentions to Act	
		Mean	SD	Mean	SD	Mean	SD
Age	17-25	4.22	.568	3.98	.584	3.90	.589
	26-35	4.33	.526	4.14	.539	3.94	.560
	36-45	4.31	.520	4.24	.554	4.12	.518
	46-60	4.28	.392	4.23	.603	4.12	.588
Gender	Male	4.39	.536	4.26	.602	3.90	.666
	Female	4.25	.527	4.05	.573	3.99	.568
Year of BN Program	Year 1	4.34	.498	4.02	.605	3.94	.592
	Year 2	4.23	.571	4.06	.615	3.95	.556
	Year 3	4.18	.555	4.13	.517	4.00	.615
Employment: status	Employed	4.22	.545	4.05	.581	3.94	.588
	Not employed	4.37	.508	4.12	.585	4.01	.583
Employment: contract	Full-time	4.56	.357	4.22	.463	4.22	.543
	Part-time	4.17	.505	4.06	.580	3.90	.562
	Casual/ contract	4.23	.570	4.04	.585	3.95	.609
	Seasonal	4.20	.589	3.65	.790	3.90	.622
Previous health employment	Yes	4.23	.578	4.08	.601	3.95	.577
	No	4.29	.499	4.06	.570	3.97	.603
Psychological wellbeing (GHQ-28)	Low (0-4)	3.60	.872	3.47	.702	3.60	.400
	High (5-11)	4.07	.637	4.10	.760	3.76	.675
	High (12-28)	4.28	.526	4.07	.569	3.98	.582

Influence of Personal Characteristics

Student nurses' 'feelings' towards health appeared to be the attitudinal component influenced the most by personal characteristics. There was a significant difference in 'feelings' towards health by year of BN program ($F(2,336) = 3.128$, $p<0.05$), with students becoming more positive as they progressed through their study (see table 3). Those not in employment were found to have more positive health 'feelings' towards health than those in employment ($F(1,366) = 5.642$, $p<0.05$). Finally, the higher the participant score on the GHQ-28, the more positive the student nurses' 'feelings' towards health ($F(2,366) = 3.862$, $p<0.05$).

Attitudinal 'beliefs' and 'intentions' were also influenced by personal characteristics, although seemingly to a lesser extent. Respondents in older age groups reported more positive health 'beliefs' (F(3,350) = 4.414, p<0.01) and 'intentions' (F(3,350) = 2.986, p<0.05). There was also a significant difference in the health 'beliefs' of male and female student nurses (F(1,337) = 4.246, p<0.05), with males being more positive (see Table 3).

Previous health employment experience and hours worked in current employment did not account for significant differences across the attitude subscales.

DISCUSSION

Nurses are the largest professional group within healthcare and are often viewed as public role models for healthy behaviour (Smith and Legget 2007). Their role in primary prevention strategies that aim to promote positive health choices is arguably key and if the success of such strategies is to be maximised, a greater understanding of nurses' own personal attitudes towards health is needed. This may assist in the design of curriculum to help improve graduates' health attitudes and educate for the health advocacy role. This study sought to offer some initial insights into the potential influence that personal characteristics have on health attitudes of student nurses' at an Australian University.

Findings suggest the more life experience and health related learning a student nurse has (i.e. older and later stage of BN program) the more positive her/his attitude's to health. Continuous education, therefore, may be important in promoting positive attitudes in students as they progress into graduate nursing. Integrating a strong focus on the links between education and successful health promotion into the BN curriculum may also encourage nurses to be 'learners for life' and to be reflective of their role as primary health advocates. Interestingly, respondents not in employment were most positive in their feelings towards health than those in employment. A likely reason for this is the extraneous stress placed on students when they both work and study, with this

stress affecting their feelings toward health. This latter theory fits with the finding that the better the student's reported psychological wellbeing, the more positive their feelings towards health. As such, adequate support structures should be implemented to maximise psychological wellbeing and ensure that the nurse is supported as they move through their career. Finally, the finding that male student nurses had more positive 'beliefs' about health than their female counterparts fits with previous research that has shown males perceive themselves as less susceptible to health risks than females. It may be that this more positive perception of health translates into more positive health 'beliefs' of males, as shown in this study.

The findings also provide important information about health attitudes and the aspects that comprise it. Firstly, it is not unexpected that student nurses would have positive attitudes to health as it makes intuitive sense that a health conscious individual with a positive attitude will gravitate to work in a health related profession. Secondly, the HAS-form B, in which attitude is measured in terms of its three components appears to be an appropriate tool to survey health attitudes. Student nurses varied in their positivity on the three subscales and these findings may have been undetected if a global attitudinal measurement had been used. Finally, the finding that 'feelings' were the most positive component and the most influenced by personal characteristics fits with previous literature that posits 'feelings' are typically the first process in reacting to a situation and forming an attitude (Slovic et al 2004; Loewenstein et al 2001). It may be the BN program for a student nurse is an important time when 'feelings' towards health are constructed and frames their attitudes towards health and effectiveness in promoting healthy lifestyle choices. Positive messages about health and a healthy lifestyle are important during these early years of study as it may indirectly impact on the success of primary prevention strategies.

In interpreting these findings it is important to consider two main issues that may have limited the study.

Firstly, the research was conducted at one Australian University making the wider generalisability of the results to other universities and countries difficult. Also, although the personal characteristics chosen to be explored were concluded from the review of literature, the results may be limited by those chosen.

CONCLUSIONS

A greater effort is required to reduce the number of chronic diseases which are often caused through lifestyle choice. Nurses are in a privileged position to model and advocate healthy lifestyles and building an understanding of the relationship between student attitudes and health behaviour will give direction to how best promote positive health attitudes to undergraduate nurses. This study found personal characteristics can influence student nurses' attitudes towards health and measuring attitudes in a three-component manner is important. Further research is advocated to replicate these findings in a broader sample and determine their true implications in the design of primary prevention strategies.

REFERENCES

Aalto, M., Pekuri, P. and Seppa K. 2005. Implementation of brief alcohol intervention in primary health care: do nurses' and general practitioners' attitudes, skill and knowledge change? *Drug and Alcohol Review*, 24(6):555-558.

Ajzen, I. 1991. The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes*, 50(2):179–211.

Ajzen, I. 1988. Attitudes, personality and behaviour. Open University Press: Buckingham.

Ajzen, I. and Fishbein, M. 1980. Understanding attitudes and predicting social behaviour. Prentice-Hall: Englewood Cliffs, NJ.

Armitage, C.J. and Connor, M. 2001. Efficacy of The Theory of Planned Behaviour: a meta-analytic review. *British Journal of Social Psychology*, 40(4):471-499.

Callaghan, P. 1999. Health beliefs and their influence on United Kingdom nurses' health-related behaviours. *Journal of Advanced Nursing*, 29(1):28-35.

Clark, E., McCann, T.V., Rowe, K. and Lazenbatt, A. 2004. Cognitive dissonance and undergraduate nursing students' knowledge of, and attitudes about, smoking. *Journal of Advanced Nursing*, 46(6):586-594.

Cohn, L.D., Macfarlane, S., Yanez, C., and Imai, W.K. 1995. Risk-perception: differences between adolescents and adults. *Health Psychology*, 14(3):217-222.

Courtenay, W.H. 2003. Key determinants of the health and well-being of men and boys. *International Journal of Men's Health*, 2(1):1-30.

Eriksen, W. 2006. Practice area and work demands in nurses' aides: a cross-sectional study. *BMC Public Health*, 6(April):97-105.

Godin, G. and Kok, G. 1996. The theory of planned behaviour: a review of its applications to health-related behaviours. *American Journal of Health Promotion*, 11(2):87–98.

Goldberg, D.P. and Hillier, V.F. 1979. A scaled version of the General Health Questionnaire. *Psychological Medicine*, 9(1):139-145.

Goldberg, D.P. 1978 Manual of the General Health Questionnaire. NFER Publishing: Windsor, UK.

Hamilton, T.K. and Schweitzer, R.D. 2000. The cost of being perfect: perfectionism and suicide ideation in university students. *Australian and New Zealand Journal of Psychiatry*, 34(5):829-835.

Hausenblas, H.A., Carron, A. V. and Mack, D.E. 1997. Application of the theories of reasoned action and planned behaviour to exercise behaviour: a meta-analysis. *Journal of Sport and Exercise Psychology*, 19(1):36–51.

Irie, M., Miyata, M., Nagata, S., Mishima, N., Ikeda, M. and Hirayama, S. 1997. The relationship between workers' attitude towards health, lifestyle and mental health. *Sangyo Eiseigaku Zasshi*, 39(4):107-15.

Jones, M.C. and Johnston, D.W. 1997. Distress, stress and coping in first-year student nurses. *Journal of Advanced Nursing*, 26(3):475-482.

Loewenstein, G.F., Weber, E.U., Hsee, C.K. and Welch, N. 2001. Risk as feelings. *Psychological Bulletin,* 127(2):267-286.

McCann, T.V., Clark, E. and Rowe, K. 2005. Undergraduate nursing students' attitudes towards smoking health promotion. *Nursing and Health Sciences*, 7(3):164-174.

Nagle, A., Schofield, M. and Redman, S. 1999. Australian nurses' smoking behaviour, knowledge and attitude towards providing smoking cessation care to their patients. *Health Promotion International*, 14(2):133-144.

Petrovici, D.A. and Ritson, C. 2006. Factors influencing consumer dietary health preventative behaviours. *BMC Public Health*, 6(September):222-233.

Pryjmachuk, S. and Richards, D.A. 2007. Predicting stress in pre-registration nursing students. *British Journal of Health Psychology*, 12(1):125-144.

Purcell, C, Moyle, W. and Evans K. 2006. An exploration of modifiable health associated risk factors within a cohort of undergraduate nursing students. *Contemporary Nurse,* 23(1):100-110.

Richard, C., Lussier, M.T., Gagnon, R. and Lamarche, L. 2004. GHQ-28 and cGHQ-28: implications of two scoring methods for the GHQ in a primary care setting. *Social Psychiatry and Psychiatric Epidemiology*, 39(3):235-243.

Rosenberg, M.J. and Hovland, C.I. 1960. Cognitive, affective and behavioural components of attitudes. In M.J. Rosenberg, C.I. Hovland, W.J. McGuire, R.P. Abelson, and J.W. Brehm (Eds), Attitude organisation and change: an analysis of consistency among attitude components. New Haven, Conn.: Yale University Press.

Slovic, P., Finucane, M.L., Peters, E. and MacGregor, D.G. 2004. Risk as analysis and risk as feelings: some thoughts about affect, reason, risk and rationality. *Risk Analysis*, 24(2):311-322.

Smith, D.R. and Legget, P.A. 2007. Tobacco smoking habits across a complete cross-section of Australian nursing students. *Nursing and Health Sciences*, 9(2):82-89.

Torabi, M.R., Seo, D.C. and Jeng, I. 2004. Alternate forms of health attitude scale. *American Journal of Health Behaviour*, 28(2):166-171.

Van den Putte, B. 1991. 20 years of the theory of reasoned action of Fishbein and Ajzen: a meta-analysis. Unpublished manuscript, University of Amsterdam.

Wang, W.C., Worsley, A. and Cunningham, E.G. 2008. Social ideological influences on reported food consumption and BMI. *International Journal of Behavioural Nutrition and Physical Activity*, 5(April):20-31.

Shift work and work related injuries among health care workers: A systematic review

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KEY WORDS

Shift work, needlestick injury, musculoskeletal disorder, motor vehicle crash.

ABSTRACT

Objective
To review the published scientific literature for studies analysing the associations between shift work and work related injuries among health care workers.

Design
Systematic review.

Methods
The following selection criteria were used to systematically search the literature: primary research studies published in English; target populations were health care workers engaged in shiftwork; and outcome measures were work related injury/ injuries. Data extraction and quality assessment were performed independently by the authors using a standardised procedure. Synthesis of data is presented in text and tabular format. Meta-analysis was not possible due to the heterogenic nature of the studies reviewed.

Results
This review retrieved 13 studies that met all inclusion criteria, none of which were conducted in Australia. The majority of study findings have shown that shift work is associated with a higher incidence or risk of sustaining work related injuries. However, most studies were cross sectional in design. The only case control study presented contrary results to the other studies. Furthermore, all study results could have been biased or confounded due to methodological limitations.

Conclusions
The relationship between shift work and work related injuries amongst health care workers could not be determined due to the relatively low level of evidence. High quality analytic studies should be conducted to provide better results explaining the causal relationship.

INTRODUCTION

Work-related injuries impact on the individual employee's health and impose costs on employers, other workers and the community and in turn affect a nation's productivity. The National Occupational Health and Safety Commission (NOHSC) reported that about 380 workers suffer from a work-related injury or disease for which they receive workers' compensation in Australia everyday (ASCC 2004). This results in an estimated cost of work-related injury and disease of $82.8 billion for the 2000-01 financial year (NOHSC 2004). Over the past six years, about half of all new workers' compensation claims and almost half of compensable fatalities have occurred in four industries namely: manufacturing, construction, transport and storage and health and community services (ASCC 2007). In 2004-05, 10% of the Australian workforce worked in the health and community services sector. In the same year, the employees in this sector made 17,400 claims for compensation, accounting for 12% of all workers' compensation claims involving employee absence from work for one or more weeks (ASCC 2007).

The health sector of any country comprises a large group of people working on nonstandard work schedules. In Australia, the health and community services sector has the second highest proportion of shift workers of any industry, which is 32.3% (ABS 2004). The majority of nurses in Australia are working rotating shifts in order to provide twenty four hour health care. Previous research has demonstrated the adverse health effects from shift work (Chee et al 2004; Karlsson et al 2001; Sudo and Ohtsuka 2001; Geliebter et al 2000). The current global crisis in health care workforce shortages (Pan American Health Organization 2006), especially nurses, signifies the importance of recognising that occupational injury related to shift work may potentially contribute to health care workforce attrition. Nursing workforce shortages are acknowledged globally. In Australia, there was an estimated shortfall of between 10,000 to 12,000 nurses in 2006 and between 10,000 and 13,000 in 2010 (Productivity Commission 2006). Therefore, it is imperative to investigate the association between shift work and work-related injuries among the health care workforce.

The aim of this paper is to systematically review the evidence in the published scientific literature that examines the association between shift work and work-related injuries among health care workers.

METHODS

For the purpose of this review, shift work and work related injuries were defined as follows: shift work is work performed primarily outside typical daytime hours and includes evening shifts, rotating shifts, irregular shifts, extended duty shifts ($\geq$ eight hours), and flexitime (Green-McKenzie and Shofer 2006). A work-related injury is any injury, illness or disease where a person suffered either physically or mentally from a condition that arose out of, or in the course of, employment. Included are work-related injuries that occurred while commuting to or from work, outside of work but while on work duty, or during work breaks (ABS 2007).

Electronic databases were searched using EBSCO host as a search engine for CINAHL (1982-2008), Pre-CINAHL (2008), Health Source: Nursing/Academic Edition (1975-2008), and MEDLINE (1966-2008). The first round search was not limited to only health care workers, so the extent of literature related to shift work and injury could be explored.

Keywords:

'shift work' or 'night shift' or 'rotating shift' or 'long hours'

AND injur* or accident or disorder

NOT treatment

The combined results of the above searches produced 604 abstracts. Following screening of the titles and abstracts by the first two authors, and the exclusion of those papers which did not meet the study inclusion criteria a total of 28 full text articles reporting findings on health care workers were retrieved. The references of these retrieved articles were also examined. A 'snowballing' strategy of reference titles was used and related abstracts and/or full text articles were accessed.

Table 1: Studies of associations between shift work and work related injuries

Authors	Study design	Study population	Outcome measures	Exposure measures
Green Mckenzie et al (2007)	Cross sectional study	A data review of all accidental blood and body fluid was conducted from January 2001 to December 2002, at a large urban teaching hospital. 360 HCWs reported an accidental blood and body fluid exposure. The mean age of all 360 HCWs was 33 (21-75) years. (N= 360)	Accidental blood and body fluid exposures	Length of shift; HCW group (House staff, Nursing staff, Technician)
İlhan et al (2006)	Cross sectional study	449 of the 516 nurses from a Turkish hospital participated in the study. 41.4% were in the 25–29 years age group, 67.8% had worked as a nurse for <10 years, the working hours of 71.9% of the nurses were 8 hours or less per day. (N= 449, response rate 87%)	Incidence of sharp and needle stick injuries	Age; Total years in profession; Total years at current hospital; Daily working hours; Working in shifts; Unit employed (clinical/surgical); Where employed most in the last year (outpatients/ward/intensive care/other).
Smith et al (2006)	Cross-sectional study	Nurses were recruited from a large Japanese hospital. (N = 860)	Needlestick and sharps injuries (NSIs)	Sex; Age< 25 years; < 2 years work; Hours worked/ day; Hours worked/ week; mixed shifts; Very difficult work; Fatigued after work; Stressed from work; High time pressure; Much unplanned work; High mental pressure; Too much work; Too much overtime; Not enough staff.
Suzuki et al (2004)	Cross-sectional study	A survey using the 12-item General Health Questionnaire was conducted among 4407 nurses in 8 general hospitals in Japan.	Needlestick injuries	Mental health, sleep, demographic variables and shift work system.
Parks et al (2000)	Cross sectional study	A retrospective review of 745 reported exposures by medical students and residents was conducted in a large urban teaching institution—the University of Texas Health Science Center in Houston, between November 1993 and July 1998.	Accidental exposures to blood borne pathogens	Sites, gender, time of the day when the accidents happened.
Guastello et al (1999)	Cross sectional study	Participants were 1708 health care workers at the three hospitals located in Maryland, Minnesota, and Texas.	Exposure to blood borne pathogens and other accidents	Depression symptoms, shift work, job satisfaction, safety climate, environmental stressors, work pace, compliance with universal precautions and HIV related training.
Neuberger et al (1984)	Cross sectional study	Data on needlestick injuries of hospital employees were obtained from workers' compensation reports, from January 1, 1979, through May 31, 1981. (N = 286)	Incidence of needlestick injuries	Work schedule characteristics (status, number of jobs, hours/ day, hours/week, days/week, weekends/month, shift, breaks/ day, breaks)
Engkvist et al (2000)	Case control study	Female nurses (age (SD) 30.3 (8.9)) working in 8 general hospitals equipped with 400 beds or more in Japan. (N = 4,279)	Occupational accidents including drug-administration errors; incorrect operation of medical equipment; errors in patient identification; needle stick injuries.	Age; Spouse; Mental health; Subjective sleep evaluation; Difficulty in initiating sleep; Difficult in maintaining sleep; Early-morning awakening, difficulty in getting back to sleep; Shift work (night/split/ irregular)
Lipscomb et al (2002)	Cross sectional study	A sample of 1163 nurses, randomly selected from the list of actively licensed nurses in two states of the United States. Data were collected via an anonymous survey mailed to the participants' homes from October 1999 through February 2000.	Reported musculoskeletal disorders	Department, occupation, activity, shift, and full or part time status.

Table 1: Studies of associations between shift work and work related injuries, *continued...*

Authors	Study design	Study population	Outcome measures	Exposure measures
Sveinsdóttir (2006)	Cross sectional study	A sample of 394 nurses drawn from the registry of the Icelandic Nurses' Association, representing 17% of the workforce of Icelandic nurses. (N= 394, response rate 65.7%)	Socio demographics; Quality of sleep; Symptom scales (gastrointestinal scale, sound perception scale, stress and exhaustion scale, common cold scale, musculoskeletal scale); Working environment; Illness experience; Job satisfaction.	Day shifts only; Rotating day/ evening shifts; Rotating day/night/ evening shifts.
Horwitz et al (2004)	Cross sectional study	This study used Oregon workers' compensation claim data from 1990 to 1997 to examine the differences in hospital employee claims (N = 7717) by shift and occupation. Seventy-nine per cent of all claims were filed by female employees.	Demographic characteristics; Occupation of claimant; Nature of injury; Event causing injury	Day shift (starting work between 4a.m. and 11a.m.); Evening shift (starting work between 12 p.m. and 7 p.m.) Night shift (starting work between 8 p.m. and 3 a.m.)
Steele et al (1999)	Cross sectional study	All US allopathic EM-2–EM-4 residents were invited to participate in the study by completing a survey. 62% (957/1,554) of the eligible residents returned usable surveys. The median age of the respondents was 30 years, with an interquartile range of 30–33. Seventy-five percent of the respondents were male. (N= 957)	Motor Vehicle Collisions (MVCs)/ Near crashes	Tolerance of shiftwork, Ability to overcome drowsiness, No. of night shifts/ month, Resident age, Emergency medicine year, Gender, Morningness/eveningness preference, Shift length worked
DeMoss et al (2004)	Cross sectional study	188 permanent day and night-shift workers, with an average age of 40 years: 85% were female, and 55.6% were employed full-time. Two-thirds (66.0%) of workers were registered nurses (RNs), with a mean of 13.8 continuous years on the job. (N= 188, response rate 87%).	Sleep disorders; Difficulty performing routine orders.	Day shift; Night shift.

Other databases were also searched adding health care workers into the searching strategy, including the Cochrane library, Proquest, and PsycInfo. However, only Proquest and PsycInfo produced another 55 and 114 results respectively. After removing duplicates, six full text articles were retrieved for further examination.

Keywords:

'shift work' or 'night shift' or 'rotating shift' or 'long hours'

AND injur* or accident or disorder

AND 'health care worker*' or 'health personnel'

Overall, 34 full text articles were retrieved and assessed by the first two authors independently, using the following selection criteria for this study:

1. primary research studies published in English;

2. the target populations were health care workers engaged in shift work; and

3. outcome measures were work related injury/ injuries.

Thirteen studies met all the inclusion criteria for this review. Assessment for the quality of the methodology of these studies was based on a standardised abstraction procedure (Centre for Reviews and Dissemination Report 2001). The results of selected studies are outlined in table 1 and table 2. The 21 excluded articles are shown in table 3 with the reasons for exclusion.

Table 2: Results of selected studies

Authors	Study design	Results
Green Mckenzie et al (2007)	Cross sectional study	Of the 360 HCWs who reported an accidental blood and body fluid exposure, 243 (68%) were women, 180 (50%) were married, 139 (40%) had 1 or more dependents, 158 (44%) were medical residents, 141 (39%) were nurses, and 61 (17%) were technicians; 3 of the technicians were phlebotomists. Medical residents were on duty for a significantly greater mean number of hours before accidental blood and body fluid exposures (7.9 (4.9) hours) than were nursing staff (6.3 (3.7) hours; p = 0.02) and technicians (4.8 (2.6) hours; p < 0.0001). Of blood and body fluid exposures incurred by medical residents, 30 (24%) occurred during the first 4 hours of duty, 42 (34%) during hours 4-8, 27 (22%) during hours 8-12, and 24 (20%) after 12 hours. Eight (6%) of the nurses and no technicians sustained an accidental blood and body fluid exposure after more than 12 hours of duty.
İlhan et al (2006)	Cross sectional study	During the professional life of nurses, the prevalence of sharp and needle stick injury in the past in nurses working more than 8 hours per day was higher than for those who worked 8 hours or fewer per day (86.5% and 77.1% respectively) (p < 0. 05). In the last year, the group which worked more than 8 hours per day had an incidence of 77.1%, while the group working 8 hours or fewer per day had an incidence of 64.7% (RR 1.84; 95% CI 1.10 to 3.08). In the last year, the incidence of sharp or needle stick injury was 75.8% in those working in varying shifts and 50% in the group that did not work in varying shifts (p < 0.05). Working mixed shifts (rotating day and night, as opposed to day shifts alone) was associated with a 1.67 fold increased risk of sustaining any NSI (OR 1.67, 95% CI 1.01 to 2.85) and a 2.72 times greater risk of sustaining an NSI from a contaminated device (OR 2.72, 95% CI 1.71 to 4.44).
Smith et al (2006)	Cross sectional study	Night/split/irregular shift work was not significantly associated with needlestick injuries (OR: 1.18, 95% CI 0.91 to 1.52).
Suzuki et al (2004)	Cross sectional study	There was a slightly higher relative risk of working on rolling schedule (RR 1.3, 95% CI 0.8 to 2.1) compared to working on fixed schedule. Elevated relative risk was found in nurses who work more than 35 hours per week (RR 2.4, 95% CI 1.6 3.6) compared to nurses who work less hours per week.
Parks et al (2000)	Cross sectional study	The total number of medical residents and students working during the day (n= 1102) was greater than that of night (n= 296). As a result, the total number of exposures occurring during the day was much higher than at night (531 v 214). When the number of exposures was calculated relative to the number of medical students and residents at risk per clock hour, the mean rate of the exposures was significantly higher (p < 0.04) during the night time (60 incidents per hour per 1000 medical residents and students at risk) compared to during the day (40 incidents per hour per 1000 medical residents and students at risk). Overall, the relative risk for an exposure during the night (18:00–05:59) was 1.5 times higher than it was during the day (06:00–17:59).
Guastello et al (1999)	Cross sectional study	Two variables predisposed the worker to a greater accident risk: depression symptoms and shift work (p < 0.01). Four other variables predisposed the worker to lesser accident risk: job satisfaction, safety climate, environmental stressors, and work pace.
Neuberger et al (1984)	Cross sectional study	The overall annual incidence of needlestick injuries was 48.8/1000 employees. Of the reported incidents, almost 90% occurred among nursing personnel, housekeepers, and clinical laboratory personnel. The overall annual rate of needlestick injuries per 1000 employees was highest during the night shift (134.8). The rate is significantly higher than that of the day shift (p < 0.05) and that of the evening shift (p < 0.01). Overall, the evening shift had the lowest rate.
Engkvist et al (2000)	Case control study	No significant associations were observed between needlestick injuries over the past 12 months and with night/irregular shift work (OR 1.18, 95% CI 0.91 to 1.52).
Lipscomb et al (2002)	Cross sectional study	Shift work was associated with an increased risk of musculoskeletal disorders only when combined with weekend work. Working 'off shifts' (≥ 2 weekends/month and other than day shift work) elevated the odds ratio for musculoskeletal disorders of the neck (OR 1.43, 95% CI 0.94 to 2.18), a shoulder (OR 1.52, 95% CI 0.95 to 2.38), and the back (OR 2.08, 95% CI 1.35 to 2.96). Working 'long hours' (≥ 12 hours/day and ≥ 40 hours/week) elevated the odds ratio for musculoskeletal disorders of the neck (OR 2.30, 95% CI 1.03 to 5.11), a shoulder (OR 2.48, 95% CI 1.07 to 5.77), and the back (OR 2.67, 95% CI 1.26 to 5.66).
Sveinsdóttir (2006)	Cross sectional study	Nurses working rotating days/evenings shifts experienced more severe gastrointestinal and musculoskeletal symptoms when compared with others (F (2,307) = 6.398; p ≤ 0.002; F (2,305) = 3.599; p ≤ 0.029).
Horwitz et al (2004)	Cross sectional study	The injury rate for day shift per 10 000 employees was estimated to be 176 (95% CI 172 to 180), as compared with injury rate estimates of 324 (95% CI 311 to 337) for evening shift and 279 (95% CI 257 to 302), night shift workers. The average number of days taken off for injury disability was longer for injured night shift workers (46) than for day (38) or evening (39) shift workers.
Steele et al (1999)	Cross sectional study	Nearly three fourths of the MVCs and 80% of the near-crashes followed the night shift. Univariate analysis showed that MVCs and near-crashes were inversely related to residents' shiftwork tolerance (p = 0.019) and positively related to the number of night shifts worked per month (p = 0.035).
DeMoss et al (2004)	Cross sectional study	No significant differences were noted in the likelihood of work or non work-related injuries or motor vehicle crashes in the preceding year. (No analysis results to support the conclusion)

Table 3: Studies retrieved but not selected

First author	Reason for exclusion
Roman (2008)	News, not a primary research article.
Lee (2007)	Doctoral dissertation, not a published primary research article.
Dembe et al (2007)	The target population is not health care workers.
Huang et al (2007)	The outcome measure is perception of injury risk; the target population is not health care workers.
Peate (2007)	Not a primary research article, a summary article about how to cope with shift work.
Scott (2007)	Not a primary research article, a summary article about coping strategies for shift work.
Wilkins and Mackenzie (2007)	No discrete analysis on health care workers.
Driscoll et al (2007)	Not a primary research article.
Nugent et al(2007)	Not a primary research article.
Solomon et al (2007)	Majority of study population is men working in agriculture.
Dembe et al (2006)	There is no discrete data on occupational injuries experienced by health care workers.
Raediker et al (2006)	There is no discrete data on health complaints experienced by health care workers.
Siddharthan et al (2006)	Exposure variable is under-reporting of work related musculoskeletal disorders in the Veterans Administration, instead of occupational injuries.
Suzuki (2005)	The exposure variable is excessive daytime sleepiness instead of shift work.
Åkerstedt et al (2005)	No separate analysis on health care workers.
Folkard et al (2005)	A review paper, not a primary research.
Sorensen (1999)	Study population is not health care workers.
Wysong (1997)	Periodical, not a primary research article.
Tan (1991)	A review article, not a primary research article.
Gillmore (1990)	Doctoral dissertation, not a published primary research article.
Williamson et al (1988)	Not a primary research article.

RESULTS

This search revealed 13 studies that met all inclusion criteria. These studies can be categorised into three groups, namely studies examining the association between shift work and blood or body fluid exposure; the association between shift work and musculoskeletal disorders; and the association between shift work and motor vehicle crashes.

Studies examining the association between shift work and blood or body fluid exposure

Seven cross sectional studies were identified from the literature reporting the relationship between shift work and blood or body fluid exposure.

A retrospective cross sectional descriptive study aimed to determine the length of shift before blood and body fluid exposure in medical residents, nurses, and technicians and the proportion of medical residents who sustain a blood and body fluid exposure

after 12 hours on duty (Green-McKenzie and Shofer 2006). The study lasted over a 24 month period and reviewed data on blood and body fluid exposures at a large urban teaching hospital in the United States of America. During the study period, there were 360 eligible health care workers (HCWs) who reported a blood and body fluid exposure. The average yearly rate of reported blood and body fluid exposures was 9.4% for medical residents, 7.9% for nursing staff, 3% for phlebotomists, and 3% for all HCWs. The mean number of hours before blood and body fluid exposures were significantly greater (7.9 (4.9) hours) for medical residents than that of nursing staff (6.3 (3.7) hours; $p = .02$) and technicians (4.8 (2.6) hours; $p < .0001$). Of blood and body fluid exposures reported by medical residents, 30 (24%) occurred during the first four hours of duty, 42 (34%) during hours 4-8, 27 (22%) during hours 8-12, and 24 (20%) after 12 hours. Eight (6%) of the nurses and no technicians

sustained a blood and body fluid exposure after more than 12 hours of duty. The blood and body fluid exposures incurred by nursing staff were almost equally distributed among the three shifts. About half of the blood and body fluid exposures reported by both the medical residents and technicians occurred during the day shift. The authors concluded that medical residents sustained a higher rate of blood and body fluid exposures and they were significantly more likely to have longer duration of time on shift before blood and body fluid exposure. The authors also acknowledged that the injury rate per shift was unable to be determined as data regarding the number of HCWs who routinely worked each shift was not available. Additionally, the study results might be confounded. As data on shift end time was not captured, it did not allow for adjustment of the data for average length of shift. These limitations may have contributed to the absence of significant differences found among the groups.

Another cross sectional study reported the sharp and needlestick injury incidence in nurses working at a university hospital and the contributing factors (İlhan et al 2006). Data were collected from HCWs who worked at a Turkish hospital by completing a self administered questionnaire (response rate 87%). The mean number of weekly working hours was 40.03 (2.15) hours (median 40; range 25–50). The mean of daily working hours was 9.05 (1.09) (median 8; range 4– 16), and about one third of nurses reported they were working with ≥eight hour shifts. The percentage of nurses experiencing a sharp or needlestick injury during their professional life was 79.7%. The incidence of exposure to sharp or needlestick injury in the previous year was 68.4%. The factors increasing the rate of sharp and needlestick injury were: age 24 years and less, ≤four years of nursing experience, working in surgical or intensive care units and working for more than eight hours per day ($p < 0.05$).

Smith et al (2006) conducted a cross-sectional study of 860 nurses from a large hospital in Japan to study the epidemiology of needle stick and sharps injuries (NSIs). Anonymous questionnaires were distributed to gather information on demographic items, types of shift schedule, the type of device that caused the NSI, whether the device was contaminated, whether the NSI was officially reported to management, and if not, the reasons why it was not reported. Among 860 nurses, there had been a total of 648 NSIs in the previous year. The results demonstrated that working mixed shifts (rotating day and night, as opposed to day shifts alone) was associated with a 1.67-fold increased risk of sustaining any NSI and a 2.72 times greater risk of sustaining an NSI from a contaminated device. The authors recognised the imprecise definition of the shift work schedule in use in the study under examination.

Another cross-sectional study was also conducted by Japanese researchers to analyse various factors related to occupational accidents over a 12 month period (Suzuki et al 2004). The subjects of this study were 4,407 nursing staff working in eight large general hospitals in Japan. Occupational accidents included drug administration errors, incorrect operation of medical equipment, errors in patient identification, and needle stick injuries. Anonymous self-administered questionnaires were used to collect information on mental health, sleep, and occupational accidents, in addition to questions on demographic variables and the shift-work system. Multiple logistic regression analyses on factors leading to occupational accidents during the past 12 months showed statistically significant associations between needlestick injuries and age. However, night/split/irregular shift work was not significantly associated with needlestick injuries (OR: 1.18, 95% CI 0.91 to 1.52). There were no clear operational definitions of occupational accidents, which should be borne in mind when interpreting the study findings.

The purpose of Parks et al's (2000) cross sectional study was to determine whether the occurrence of accidental blood borne pathogen exposure incidents in medical students and residents in training varies during a 24 hour period. The study was carried out in the University of Texas Health Science Centre in Houston over a five year span. Professional level (year

of student or level of resident), time of exposure, means/route of exposure (needle stick, laceration or splash), and type of medical service were recorded. The total number of medical residents and students working during the day (n= 1102) was greater than that of night (n= 296). As a result, the total number of accidental exposures occurring during the day was much higher than at night (531 versus 214). When the number of accidental exposures was calculated relative to the number of medical students and residents at risk per hour, the day-night difference in rate of exposures was statistically significant ($p < 0.04$, 60 incidents v. 40 incidents per hour per 1,000 medical residents and students at risk). This means that doctors (in training) working nights are at a 1.50 times greater risk of sustaining a blood borne pathogen exposure compared to working days. One merit of this study is that data for the number of residents and medical students at risk of accidental blood borne pathogen exposure per hour of the day and night were adjusted in the results. However, the authors could not correlate the number of accidental exposures with the number of high risk procedures performed during the day and night as the procedural data was not gathered in this study.

One study used catastrophe models to test the exposure to blood and bodily fluids and more conventional occupational accidents among 1,708 health care workers in the USA, who completed a survey measuring HIV-relevant exposures (needlesticks, cuts, splashes, contact with open wounds), the accident rate for broadly-defined injuries, and several occupationally relevant themes: safety climate, shift work, depression symptoms, work pace, verbal abuse, and professional group membership (Guastello et al 1999). Shift work (rotating shifts, permanent evening shift and permanent night shift) was found to be significantly associated with predisposition to greater differences in HIV-relevant and general accident exposures ($p < 0.05$) and to a greater accident risk ($p < 0.01$).

A retrospective review of needlestick injuries was conducted in order to determine the needlestick injury rate among employees according to department,

occupation, activity, shift and full or part time status (Neuberger et al 1984). Data on needlestick injuries of hospital employees was obtained from workers' compensation reports submitted to the medical centre's safety office over 29 month period at a major university teaching hospital in the United States. The needlestick injuries included only those from hypodermic needles where the needle was either previously used on a patient or discarded in a patient care area. Throughout the 29 month period, there were 286 injuries reported. The overall annual incidence of needlestick injuries was 48.8/1,000 employees. Of the reported incidents, almost 90% occurred among nursing personnel, housekeepers, and clinical laboratory personnel. The overall annual rate of needlestick injuries per 1,000 employees was highest during the night shift (134.8). The rate is significantly higher than the day shift ($p < 0.05$) and the evening shift ($p < 0.01$). Overall, the evening shift had the lowest rate.

Studies examining the association between shift work and musculoskeletal disorders

The review identified four studies that analysed the association between shift work and musculoskeletal disorders.

The first study was a case control study aiming to identify and quantify work related and non work related risk indicators for reported over exertion back injuries among nursing personnel. The source population consisted of all nursing personnel employed in Stockholm County hospitals during a 32 month period in Sweden (Engkvist et al 2000). The cases (n= 240) were nurses who reported a work related over exertion back injury. Referents (n= 614) were selected from the source population matching on sex and age (within five years). All participants completed questionnaires about occupation, type of clinic, working hours, shift work, patient transfers, perceived exertion, back pain, prior back injury, job strain, body mass index, smoking, immigrant status, physical training and self rated fitness. The highest relative risks were observed for work related factors: working at an orthopaedic clinic, patient transfer/ shift, and working fulltime. There was a slightly

higher relative risk of working on a rolling schedule (RR 1.3, 95% CI 0.8 to 2.1) compared to working on a fixed schedule; however, the results were not statistically significant. Elevated relative risk was found in nurses who work more than 35 hours per week (RR 2.4, 95% CI 1.6 3.6) compared to nurses who work fewer hours per week. This study design provided a better opportunity to determine the causal relationship. Nevertheless, the definition of rolling schedule was not provided.

A cross sectional study of 1,163 randomly selected actively licensed nurses in two states of the USA was conducted to examine the relationship between a combination of demanding work schedule characteristics and reported musculoskeletal disorders of the neck, shoulders, and back (Lipscomb et al 2002). Data on neck, shoulder and back problems, workplace, position, physical demands, psychological demands, and work schedule characteristics, were collected via an anonymous survey mailed to the participants' homes from October 1999 through February 2000. The nine work schedule characteristics included fulltime work, more than one job, more than eight hours of work per day, more than 40 hours of work per week, six or seven day shifts of work a week, work on two or more weekends a month, work shifts other than days, no more than one break lasting ten minutes or more per shift, and never or rarely breaks out of the unit. The authors reported four of the nine work schedule characteristics (working full time, > eight hours/day, two to four weekends/month, and other than day shift) were significantly related to musculoskeletal disorders in one or more body sites. Adjustment for psychological and physical job demands reduced the odds ratio slightly. Working long hours (> 12 hours/ day, > 40 hours/week) elevated the odds ratio for musculoskeletal disorders of the neck (OR 2.30, 95% CI 1.03 to 5.11), a shoulder (OR 2.48, 95% CI 1.07 to 5.77), back (OR 2.67, 95% CI 1.26 to 5.66). Working off hours (weekends and other than day shifts) also elevated the odds ratio for musculoskeletal disorders in the three body sites (neck: OR 1.43, 95% CI 0.94 to 2.18; a shoulder: OR 1.52, 95% CI 0.98 to 2.38;

back: OR 2.08, 95% CI 1.35 to 2.96, respectively). However, the results of musculoskeletal disorders in the neck and a shoulder were not statistically significant. This cross sectional study was limited to the current workforce so that nurses who had left nursing due to musculoskeletal disorders or other health conditions were not included. As a result, the prevalence of reported musculoskeletal disorders and the association of schedules with reported musculoskeletal disorders could have been underestimated. The authors attempted to reduce recall bias by limiting the recall period to the past year and by using a threshold definition for a reported case. Some studies have shown that nurses, as a population, provided valid and reproducible data on risk factors and health outcomes when surveyed (Giovannucci et a 1993; Colditz et al 1987; Colditz et al 1986). However, there was no validation test to prove this. Therefore, the findings need to be interpreted with caution.

Another two studies reported findings not only on musculoskeletal disorders, but also other work related injuries or body system disorders. The first one was a cross sectional study of a sample of 348 nurses drawn from the registry of the Icelandic Nurses' Association to describe and compare the self assessed quality of sleep, occupational health, working environment, illness experience and job satisfaction among female nurses working different combination of shifts (Sveinsdóttir 2006). Data were obtained by self administered questionnaires and analysed according to type of shift (days only, rotating days/evenings, rotating days/evenings/nights). The study findings indicated that nurses working rotating day/evening shifts experienced more severe gastrointestinal and musculoskeletal symptoms when compared with others ($F_{(2,307)} = 6.398$; $p \leq 0.002$; $F_{(2,305)} = 3.599$; $p \leq 0.029$). The other cross sectional study aimed to derive and compare the rates, typologies, costs and disability time of injuries for various hospital worker occupations by day, evening and night shift (Horwitz and McCall 2004). Occupational injuries included musculoskeletal disorders, stress, hearing loss and rheumatism. The

study used Oregon workers' (n=7717) compensation claim data from 1990 to 1997. The injury rate for day shift per 10 000 employees was estimated to be 176 (95% CI 172 to 180), as compared with injury rate estimates of 324 (95% CI 311 to 337) for evening shift and 279 (95% CI 257 to 302) for night shift workers. The average number of days taken off for injury disability was longer for injured night shift workers than for day or evening shift workers. The authors concluded that evening and night shift hospital employees were found to be at greater risk of sustaining an occupational injury compared to day shift workers; however, no measure of effect is reported.

Studies examining the association between shift work and motor vehicle crashes

Besides the above occupational injuries, motor vehicle crashes (MVCs) or near crashes before and/or after work should not be neglected. Two studies conducted in the USA were identified from the literature, the first of which was a cross sectional study carried out to determine the prevalence and risk factors associated with MVCs and near-crashes as reported by emergency medicine (EM) residents following various shifts (Steel et al 1999). All EM-2 through EM-4 residents were invited to answer a self administered survey about whether they had ever been involved in an MVC or near-crash while driving home after a shift. The residents' night shift schedules, self-reported tolerance of night work, ability to overcome drowsiness, sleep flexibility, demographic information, and 'morningness/eveningness' tendencies were also collected. Overall, 62% (957/1554) of the eligible residents returned usable surveys. Seventy-six (8%) residents reported having 96 crashes and 553 (58%) residents reported being involved in 1,446 near-crashes. Nearly three quarters of the MVCs and 80% of the near-crashes followed the night shift. Univariate analysis showed that MVCs and near-crashes were inversely related to residents' shiftwork tolerance (p = 0.019) and positively related to the number of night shifts worked per month (p = 0.035). The authors acknowledged there was a higher number of MVCs and near-crashes

while driving home after a night shift compared with other shifts. Another cross sectional study assessed health and performance markers of 188 day and night shift nonphysician health care workers (DeMoss et al 2004). Study results revealed night shift workers were significantly more likely to report difficult performing routine orders. However, no significant differences were noted in the likelihood of work or non-work related injuries or motor vehicle crashes between different shifts in the preceding year; nevertheless, this conclusion was not supported by any statistical analysis. Steel et al (1999) stated there could be respondent bias in their study as only two thirds of eligible residents completed the survey. It was more likely for those residents involved in an MVC or a near crash to have returned the survey. Secondly, the definition of 'near crash' was not precise; nor was the distribution of shifts worked by each resident. Lastly, some information was not asked, including the residents' driving distances to work, their baseline driving abilities, and the time, location, and circumstances of the MVCs and near crashes.

DISCUSSION

This systematic review presented 13 studies that examined the association between shift work and work-related injuries among health care workers. These studies can be categorised into three groups, namely studies examining the association between shift work and blood or body fluid exposure; the association between shift work and musculoskeletal disorders; and the association between shift work and motor vehicle crashes.

One potential limitation of this review is the introduction of possible biases via the search strategies. Each individual author may have different interpretations in the review process; nevertheless, all have tried their best to review the published scientific literature on this topic comprehensively and exhaustively. In addition, the strict inclusion criteria guided the independent reviewers through the review process, so the validity of the conclusions could be strengthened and possible biases could be minimised.

Among the seven studies examining the association between shift work and blood or body fluid exposure, one study reported no significant association between night/irregular shift and needle stick injuries (Suzuki et al 2004). The others indicated that shift work was associated with higher risk of blood or body fluid exposure. The different kinds of shift work impacted on higher risk of blood or body fluid exposure included long working schedule (over eight hours) (Green-McKenzie et al 2006; İlhan et al 2006), rotating shifts (Smith et al 2006; Guastello et al 1999), and night shift (Parks et al 2000; Neuberger et al 1984). Among the four studies reporting the association between shift work and musculoskeletal disorders, the highest level of evidence showed no association between rolling shifts and musculoskeletal disorders (Engkvist et al 2000). This study used a case control methodology which allows better opportunity for interpreting causality. The other cross sectional studies showed a higher risk of experiencing musculoskeletal disorders for those working on nonstandard work schedule, which included extended work hours (Lipscomb et al 2002), rotating shift (Sveinsdóttir 2006), and night shift (Horwitz et al 2004). This systematic review only identified two studies examining the association between shift work and motor vehicle crashes. One reported night shift was associated with a higher risk of motor vehicle collisions (Steele et al 1999); and the other found no association between night shift and motor vehicle crashes (DeMoss et al 2004). DeMoss' study did not analyse the relationship between shift work and motor vehicle crashes as its primary research question. The conclusion on this relationship was not supported by statistical analysis. Steele et al (1999) acknowledged the possibility of confounding, such as the residents' driving distances to work, their baseline driving abilities, and the time, location, and circumstances of the MVCs and near crashes.

Overall, the majority of identified studies consistently found shift work was associated with higher risk of work related injuries. However, caution should be exercised when drawing definite conclusions about the relationship between shift work and work related injuries due to the relatively low level of evidence related to study design. Twelve of the thirteen studies were cross sectional studies, a methodology useful for exploring potential associations between causes and effects but precluded determination of causal relationship/s. Secondly, study participants in some studies were recruited from a single institution; making the results difficult to be generalised to wider populations, especially when the single institutional characteristics were not well described. Thirdly, data collection relied heavily on self reporting, which could lead to biased estimates of injury rates. Some studies have shown that nurses, as a population, provided valid and reproducible data on risk factors and health outcomes when surveyed (Giovannucci et al 1993; Colditz et al 1987; Colditz et al 1986). However, this may not extend to all health care workers. As most of the studies were retrospective, subjects were required to recall an event which happened in the past, which would cause recall bias. Some studies tried to circumvent this problem by analysing data from workers' compensation reports (Horwitz et al 2004; Neuberger et al 1984). Nonetheless, it can be argued that there might be an overestimation of injury rates based on compensation reports, as workers may tend to over report their injuries. Finally, some studies did not provide a precise definition of shift work or a clear description of the kind of injuries that occurred, which impacted on the precision of the results. Therefore, due to the relatively low level of evidence and the limitations of data collection and sampling methods, the association between shift work and work related injuries could not be determined.

CONCLUSIONS AND RECOMMENDATIONS

Based on the exploratory findings from the cross sectional studies, future research on examining the association between shift work and work related injuries amongst health care workers should build on previous research by raising the level of evidence (such as longitudinal studies and case control studies), so that the causal relationship can be quantified.

Health care workers are always expected to deliver safe care and ensure patients' safety. Undoubtedly, their safety is of great concern to society and their health and well-being should be protected. Stakeholders and policy makers should pay attention to this problem. Given the consideration of current and future projected health care workforce shortages, factors that could be detrimental to their health must be identified and well studied. A third of health sector employees are shift workers, therefore a prospective study examining any work-related injuries associated with shift work should be conducted to ensure effective injury prevention measures including best practice shift work policies can be implemented.

REFERENCES

Australian Bureau of Statistics (ABS). 2007. Work related injuries. Available from: http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/63ED457234C2F22DCA25732C002080A7? opendocument#Data%20sources%20and%20definitions (accessed August 2007).

Australian Bureau of Statistics (ABS). 2004. *Working arrangements, Australia, Nov 2003*. Cat no. 6342.0. 2004 Available from: http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/F81876E07AD15134CA256EAD007896F6/$File/63420_nov%202003.pdf (accessed October 2006).

Australian Safety and Compensation Council (ASCC). 2007. *Health and community services*. Canberra: Australia Government.

ASCC. 2004. *380 new workers compensation claims daily*. Available from http://www.ascc.gov.au/ascc/NewsEvents/MedaReleases/2004/380newworkerscompensationclaimsdaily.htm (accessed May 2007).

Åkerstedt, T., Peters, B., Anund, A. and Kecklund, G. 2005. Impaired alertness and performance driving home from the night shift: a driving simulator study. *Journal of Sleep Research*, 14(1):17-20.

Centre for Reviews and Dissemination Report 4 (2nd ed). 2001. *Undertaking systematic reviews of research on effectiveness: CRD's guidance for carrying out or commissioning reviews*. University of York. Available from: http://www.york.ac.uk/inst/crd/pdf/crd4_ph5.pdf (accessed September 2006).

Chee, H., Mirnalin, K., Maimunah, K., Khadijah, S., Jamilah, J., Nor Anita Megat Mohd, N., Rashidah, S. and Intan, O. 2004. Body mass index and factors related to overweight among women workers in electronic factories in Peninsular Malaysia. *Asia Pacific Journal of Clinical Nutrition*, 13(3):248-254.

Colditz, G. A., Stampfer, M. J., Willett, W. C., Stason, W. B., Rosner, B., Hennekens, C. H. and Speizer, F. E.1987. Reproducibility and validity of self-reported menopausal status in a prospective cohort study. *American Journal of Epidemiology*, 126(2):319 325.

Colditz, G. A., Martin, P., Stampfer, M. J., Sampson, L., Rosner, B., Hennekens, C. H. and Speizer, F. E. 1986. Validation of qustionnaire information on risk factors and disease outcomes in a prospective cohort study of women. *American Journal of Epidemiology*, 123(5):894-900.

Dembe, A. E., Delbos, R., Erickson, J. B. And Banks, S. M. 2007. Associations between employees' work schedules and the vocational consequences of workplace injuries. *Journal of Occupational Rehabilitation*, 17(4):641-651.

Dembe, A. E., Erickson, J. B., Delbos, R. G. and Banks, S. M. 2006. Nonstandard shift schedules and the risk of job-related injuries. *Scandinavian Journal of Work, Environment and Health*, 32(3):232-240.

DeMoss, C., McGrail, M., Haus, E., Crian, A. L. and Asche, S. E. 2004. Health and performance factors in health care shift workers. *Journal of Occupational and Environmental Medicine*, 46(12):1278-1281.

Driscoll, T. R., Grunstein, R. R. and Rogers, N. L. 2007. A systematic review of the neurobehavioural and physiological effects of shiftwork systems. *Sleep Medicine Reviews*, 11(3):179-194.

Engkvist, I., Hjelm, E. W., Hagberg, M., Menckel, E. and Ekenvall, L. 2000. Risk indicators for reported over-exertion back injuries among female nursing personnel. *Epidemiology*, 11(5):519-522.

Folkard, S., Lombardi, D. A., Tucker, P. T. 2005. Shiftwork: safety, sleepiness and sleep. *Industrial Health*, 43(1):20-3.

Geliebter, A., Tanowitz, M., Aronoff, N.J. and Zammit, G.K. 2000. Work-shift period and weight change. *Nutrition*, 16(1):27-29.

Gillmore, V. L. 1990. *Workplace variables and experienced occupational hazards as predictors of health of specialty nurses*. PhD dissertation: University of Maryland, Baltimore.

Giovannucci, E., Stampfer, M. P., Colditz, G. A., Manson, J. E., Rosner, B. A., Longnecker, M. P., Speizer, F. E. and Willett, W. C. 1993. Recall and selection bias in reporting past alcohol consumption among breast cancer cases. *Cancer Causes and Control*, 4(5):441-8.

Green-McKenzie, J. and Shofer, F. S. 2006. Duration of time on shift before accidental blood or body fluid exposure for housestaff, nurses, and technicians. *Infect Control and Hospital Epidemiology*, 28(1):5-9.

Guastello, S. J., Gershon, R. R. M., and Murphy, L. R. 1999. Catastrophe model for the exposure to blood-borne pathogens and other accidents in health care settings. *Accident; Analysis And Prevention*, 31(6):739-749.

Horwitz, I. B. and McCall, B. P. 2004. The impact of shift work on the risk and severity of injuries for hospital employees: an analysis using Oregon workers' compensation data. *Occupational Medicine*, 54(8):556-563.

Huang, Y. H., Chen, J. C., DeArmond, S., Cigularow, K. and Chen, P. Y. 2007. Roles of safety climate and shift work on perceived injury risk: a multi-level analysis. *Accident; Analysis And Prevention*, 39(6):1088-1096.

İlhan, M. N., Durukan, E., Aras, E., Türkçüoğlu, S. and Aygun, R. 2006. Long working hours increase the risk of sharp and needlestick injury in nurses: the need for new policy implication. *Journal of Advanced Nursing*, 56(5):563-568.

Karlsson, B., Knutsson, A. and Lindahl, B. 2001. Is there an association between shift work and having a metabolic syndrome? Results from a population based study of 27,485 people. *Occupational and Environmental Medicine*, 58(11):747-752.

Lee, S. J. 2007. *Risk perception, safe work behaviour, and work-related musculoskeletal disorders among critical care nurses*. PhD dissertation: University of California, San Francisco.

Lipscomb, J. A., Trinkoff, A. M., Geiger-Brown, J. and Brady B.. 2002. Work-schedule characteristics and reported musculoskeletal disorders of registered nurses. *Scandinavian Journal of Work, Environment and Health*, 28(6):394-401.

National Occupational Health and Safety Commission (NOHSC). 2004. *The cost of work-related injury and illness for Australian employers, workers and the community*. Australia Government: Canberra.

Neuberger, J. S., Harris, J., Kundin, W. D., Bischone, A. And Chin, T. D. 1984. Incidence of needlestick injuries in hospital personnel: implications for prevention. *American Journal of Infection Control*, 12(3):171-176.

Nugent, T. 2007. Around the clock: the effects of night shifts on your health and Safety. *Journal of Emergency Medical Services*, 32(3):92-100.

Pan American Health Organization. 2006. *People: our most precious health resource*. Available from: http://www.paho.org/English/DD/PIN/ptoday10_aug06.htm (accessed June 2007).

Parks, D. K., Yetman, R. J., McNesse, M. C., Burau, K. and Smolensky, M. H. 2000. Day night pattern in accidental exposures to blood borne pathogens among medical students and residents. *Chronobiology International*, 17(1):61-70.

Peate, I. 2007. Strategies for coping with shift work. *Nursing Standard*, 22(4):42-45.

Productivity Commission. 2006. *Australia's Health Workforce*. Final Report, Canberra, ACT, Australia. Available from: http://www.pc.gov.au/study/healthworkforce/finalreport/index.html (accessed October 2006).

Raekiker, B., Janben, D., Schomann, C. And Nachreiner, F. 2006. Extended working hours and health. *Chronobiology International*, 23(6):1305-1316.

Roman, L. M. 2008. Occupaitonal hazard: drowsy driving. *Montvale*, 71(2):14.

Scott, D. E. 2007. Surviving shift work. *Tar Heel Nurse*, 69(4):21-2.

Siddharthan, K., Hodgson, M., Rosenberg, D., Haiduven, D. and Nelson, A. 2006. Under-reporting of work-related musculoskeletal disorders in the veterans administration. *International Journal of Health Care Quality Assurance*, 19(6):463-76.

Smith, D. R., Mihashi, M., Adachi, Y., Nakashima, Y. and Ishitake, T. 2006. Epidemiology of needlestick and sharps injuries among nurses in a Japaneses teaching hospital. *The Journal of Hospital Infection*, 64(1):44-49.

Solomon, C., Poole, J., Palmer, K. T. and Coggon, D. 2007. Health-related job loss: findings from a community-based survey. *Occupational and Environmental Medicine*, 64(3):144-149.

Sorensen, U. N. 1999. Driver fatigue and at risk groups: significance for health educators. *Journal of Health Education*, 30(1):20-23.

Steele, M. T., Ma, O. J., Watson, W. A., Thomas, H. A. and Muelleman, R. L. 1999. The occupational risk of motor vehicle collisions for emergency medicine residents. *Academic Emergency Medicine*, 6(10):1050-1053.

Sudo, N. and Ohtsuka, R. 2001. Nutrient intake among female shift workers in a computer factory in Japan. *International Journal of Food Sciences and Nutrition*, 52(4):367-378.

Suzuki, K., Ohida, T., Kaneita, Y., Yokoyama, E., Miyake, T., Harano, S., Yagi, Y., Ibuka, E., Kanebo, A., Tsutsui, T. and Uchiyama, M. 2004. Mental health status, shift work, and occupational accidents among hospital nurses in Japan. *Journal of Occupational Health*, 46(6):448-454.

Suzuki, K., Ohida, T.,Kaneita, Y., Yokoyama, E., and Uchiyama, M. 2005. Daytime sleepiness, sleep habits and occupational accidents among hospital nurses. *Journal of Advanced Nursing*, 52(4):445-453.

Sveinsdóttir, H. 2006. Self-assessed quality of sleep, occupational health, working environment, illness experience and job satisfaction of female nurses working different combination of shifts. *Scandinavian Journal of Caring Science*, 20(3):229-237.

Tan, C.C. 2007. Occupational health problems among nurses. *Scandinavian Journal of Work, Environment and Health*, 17(4):221-230.

Williamson, K.M., Turner, J. G., Brown, K. C., Newman, K. D., Sirles, A. T. and Selleck, C. S. 1998. Occupational health hazards for nuses… part 2. *Image: Journal Nursing Scholarship*, 20(3):162-168.

Wilkins, K. and Mackenzie, S.G. 2007. Work injuries. *Health Reports*, 18(3):1-18.

Wysong, P. 1997. It's time to shift thinking about hours residents work. *Medical Post*, 33(15):20.

Getting connected: How nurses can support mother/infant attachment in the neonatal intensive care unit

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KEY WORDS

Neonatal intensive care unit (NICU), neonatal nursing,
mother-infant attachment, breastfeeding, kangaroo
care, support.

ABSTRACT

Objective
To explore how nurses can support the mother-infant
dyad within the neonatal intensive care unit.

Setting
Neonatal unit, Neonatal Intensive Care Unit.

Data Sources
A literature search was conducted using CINAHL,
PubMed, Web of Knowledge electronic databases and
other key references.

Primary Argument
Hospitalisation and infant ill health interrupts the
natural attachment process between a mother and
her baby. This can cause great stress and affect
the mother-infant relationship and their ability to
bond reciprocally. While nurses provide specialised
care to sick infants, two major themes and five
sub-themes emerged on how nurses can also support
mother-infant attachment. In the area of mother-infant
interaction kangaroo care, breastfeeding and
participation in routine care were found to enhance
the mother's maternal role, feelings of closeness,
inclusion and confidence. In the area of nurse-mother
interaction, nurses who provided psychosocial support,
communicated and engaged with mothers were
found to assist in developing positive and trustful
relationships. This alleviated mother's anxiety and
enhanced their confidence when interacting with their
baby.

Conclusion
Nurses working in neonatal intensive care units need
to construct nursing care around the mother-infant
dyad, with roles and responsibilities that incorporate
mother-infant and mother-nurse relationships in
support of the mother-infant attachment process.

INTRODUCTION

The newborn period is uniquely distinguished by the inseparable relationship a mother has with her infant (Karl et al 2006 p257). To enable an attachment to be built infants need to be close to their mothers to cue their needs and mothers need to be close to respond to them (Karl et al 2006 p258). Attachment is the formation of a relationship between a mother and her infant through a process of physical and emotional interactions (Franklin 2006 p81). It begins before birth, during the prenatal period where acceptance and nurturing of the foetus growing inside the mother's body takes place (Johnson 2008 p255; Franklin 2006 p81). The process of reciprocity is adaptive as the mother learns to recognise her infants cues, adapt to her behaviours and responses and meet the needs of her infant (Johnson 2008 p255).

Many factors can interrupt the mother-infant relationship. In Australia, for example, approximately 40,000 babies are admitted to special care nurseries each year with a range of health complications and needs (Toivonen 2008 p1-4). Hospitalisation and the infants ill health can interrupt the mother-infant attachment process and cause great stress for the family involved (Ramona and Lorraine 2006 p569). While nurses and other health care workers provide specialised care for sick and premature infants in hospital, many mothers struggle with limitations in their maternal role (Johnson 2008 p255). The stress experienced by parents during their infants hospital stay can affect the parent-infant relationship and their ability to bond reciprocally (Gale et al 2004 p68). Studies show that nurses play a vital role in supporting interactions between the infant and mother in the neonatal intensive care unit environment (Gale et al 2004; Blackburn 1998). How nurses implement this support is the subject of this literature review.

SEARCH METHODS

A review of published research consisted of the following steps; broad reading to determine areas of focus, identification of inclusion and exclusion criteria, literature search and retrieval, critical appraisal and analysis of the research evidence and synthesis of evidence (Roberts and Taylor 2002). Evidence was reviewed with the aims of identifying barriers that affect the mother-infant dyad within the neonatal intensive care unit and how nurses can actively support attachment.

Articles were included if the setting was primarily in a neonatal intensive care unit (neonatal unit or neonatal intensive care unit), participants were mothers of infants admitted to neonatal intensive care units or nurses working within that setting; the study identified factors that encourage or inhibit mother-infant attachment; highlighted the mother's own experiences of having their infant in a neonatal intensive care unit; and identified positive or negative aspects of nursing care in relation to the research topic. Articles were also included if they were primary research studies, published between 1998 and 2008 and in written in English language.

The sources of literature were CINAHL, PubMed and Web of Knowledge electronic databases. Literature was discussed with an experienced neonatal intensive care clinician and an academic mentor. The following key words were used to conduct the literature search: neonatal intensive care unit (NICU); neonatal unit; mother infant dyad; nursing care; neonatal nursing; attachment; mother-infant; kangaroo care; breastfeeding; nursing support; and premature infant.

Fifteen articles that met the selection criteria were reviewed. Thirteen were qualitative and two were mixed method studies. Critical appraisal of the qualitative studies was conducted using a selection of questions from the Critical Appraisal Skills Programme (CASP 2006). Critical appraisal of the mixed studies was conducted using a selection of questions from the University of Salford (2001) evaluation tool for mixed studies.

Following Roberts and Taylor (2002) the qualitative studies in this review were further evaluated using categories of credibility, fittingness, auditability and confirmability to determine rigour or 'validity and reliability'.

Thematic analysis was used to identity themes or patterns within the texts. These themes were then refined by grouping them into specific categories or sub-themes representing their own unique connection within the research aim (Braun and Clarke 2006; Roberts and Taylor 2002). Two themes were identified and five sub-themes. Some articles represented more than one theme (see table 1).

Table 1: Themes and sub-themes

Themes	Subthemes	No.of Studies	Studies
1) Mother-Infant Interaction:	Kangaroo care	8	Chia and Sellick (2005), Feldman et al (2002), Johnson (2007), Neu (1999), Roller (2005), Flacking et al (2006), Orapiriyakul et al (2007), Wingert et al (2006).
	Breastfeeding	1	Flacking et al (2006).
	Participation in Routine Care	6	Johnson (2007), Fenwick et al (2008), Bialoskurski et al (1999), Martinez et al (2007), Erlandsson and Flagerberg (2004), Heermann et al (2005).
2) Mother-Nurse Interaction:	Psychosocial Support	6	Orapiriyakul et al (2007), Flacking et al (2006), Neu (1999), Johnson (2007), Fenwick et al (2008), Mok and Leung (2006).
	Communication	3	Orapiriyakul et al (2007), Fenwick et al (2001), Mok and Leung (2006).

Mother-Infant Interaction

Early contact between infants and mothers is vital for initiating their relationship (Hunt 2008 p48). Neonatal nurses play a crucial role in assisting the attachment process by promoting and encouraging early mother-infant interaction (Chia and Sellick 2005 p20). Ways in which the nurse can support the mother and infant to interact directly are presented within the following three sub-themes of kangaroo care, breastfeeding and participation in routine care.

Kangaroo care

It was concerning that many mothers expressed a feeling of separation, exclusion and powerlessness in the NICU (Wigert et al 2006; Roller 2005). Mothers involved in Kangaroo Care (KC) were found to have different experiences. Kangaroo care provides skin-to-skin contact by placing the infant naked or wearing a nappy, prone and upright onto the bare chest of the mother (Chia and Sellick 2005 p20; Feldman 2004 p145). Seven studies reported that KC enabled mothers to have physical contact with their infant, which enhanced mother infant attachment and contributed to early development. Mothers felt KC was a 'warm, calming and comforting bonding experience', that provided both the mother and infant the opportunity to get to know one another in a profound and beneficial way (Wigert et al 2006 pp215-16; Roller 2005 p215). KC was expressed by mothers as a method that enabled them to get close to their infant, enhanced a reciprocal pleasure, encourage and strengthen attachment with their infant in an environment that inhibits this process (Flacking et al 2006 pp74-5; Wigert et al 2006 p216; Roller 2005 p216). Similarly, Neu (1999 p161) and Johnson (2007 p570) highlight the fact that mothers felt an intense feeling of connectedness during KC, which provided them with a sense that they were nurturing their infant. This in turn enhanced maternal confidence. Research by Feldman et al (2002 p21) revealed that the level of dyadic reciprocity between mothers who provided KC to their infants, including those classed as high-risk was significantly higher than those who did not provide KC.

Chia and Sellick (2005 p24) report that a majority of the nurses strongly agreed that KC promotes mother-infant attachment, maternal feeling of closeness and increases the mother's confidence while enhancing the physiological and behavioural status of the infant. Nurses felt that KC should be encouraged particularly for mothers with low birth weight and intubated infants (Chia and Sellick 2005 p23). Although nurses recognised the benefits of KC

they also expressed some concerns that impacted on their capacity to implement KC. These included minimal space in the NICU, fear of dislodging equipment, staff shortages to supervise the technique and minimal time to prepare the infant and educate the mother (Chia and Sellick 2005 p25).

Breastfeeding

Flacking et al (2006 p74) argue that breastfeeding is a critical aspect of mothers attaining some form of attachment with their infant. Mothers described the physical closeness of breastfeeding as giving them a feeling of importance and normality through infant vitality (Flacking et al 2006 p74). This interaction was expressed by mothers as a step in healing that enhanced the attachment between the mother and her baby (Flacking et al 2006 p75). Breastfeeding was described as 'not really considered as 'feeding', but more as a way of being together, where the main purpose was reciprocal pleasure, comfort and attachment' (Flacking et al 2006 p75).

Participation in Routine Care

The nurse was found to be an important facilitator of attachment in the neonatal intensive care unit by encouraging mother-infant contact to increase physical and psychological attachment (Bialoskurski et al 1999 p74). Bialoskurski et al (1999 p72) state that immediate attachment is more likely when the mother could see and have physical contact with her baby after birth. Six studies confirmed this assertion. For example, nurses who encouraged nurturing actions and contact such as touching, talking, singing, comforting, changing nappies, feeding, turning their infant and responding to behavioural cues were found to be central in the establishment of mother-infant attachment (Johnson 2007 p571). If women were informed and able to participate in their infants care, feelings of involvement, confidence and connection were established (Fenwick et al 2008 p75). These authors also discovered that not all mothers had the ability and confidence to assert their own management of their infants in this environment. Importantly, involvement in their infants care was only possible with a positive and shared attitude of the nurse (Fenwick et al 2008 p76).

Mothers who were involved in their infants care in the neonatal intensive care unit were enabled to take up their authority as a 'mother' and make decisions about their infants' care, establishing a positive attachment (Heermann et al 2005 p175; Erlandsson and Fagerberg 2004 p134). Further, Martinez et al (2007 p241) proposed that nurses are key professionals in educating parents about methods of maternal care especially related to feeding.

Mother-Nurse Interaction

The relationship between the mother and nurse plays a vital role in supporting a mother to establish a connection with her infant (Wigert et al 2006 p39). This is the second major theme identified in this review of literature. Nurses who are sensitive and supportive to the needs of new mothers can help guide and strengthen maternal responses to their infants (Karl et al 2006 p258). Therefore, mothers who experience care from nurses are more likely to build a positive and connected relationship with their infant (Karl et al 2006 p.258). The two sub-themes, psychosocial support and communication are presented in the following section.

Psychosocial Support

A mother's experience of having her baby admitted to a neonatal intensive care unit is often described as an 'emotional chaos' (Flacking et al 2006 p73). The unfamiliar environment can cause feelings of anxiety, apprehension and exclusion and limit mothers' ability to verbally express their individual needs (Flacking et al 2006 p73). Six studies indicated that positive psychosocial support by nurses helped to facilitate mother-infant attachment within the neonatal intensive care unit. Of note, nurses who provided support, assistance, privacy and had a positive and encouraging attitude towards mothers throughout their experience helped to alleviate maternal anxiety (Johnson 2007 p.572; Neu 1999 p.163). Further, mothers gained satisfaction and confidence from nurses who provided education, guidance, encouragement and emotional support throughout new experiences in the neonatal intensive care unit (Johnson 2007 p571; Mok and Leung 2006

p730). This became their source of strength and knowledge, helping to alleviate stress and be close to their baby (Mok and Leung 2006 p733).

In Sweden, a study of 25 mothers whose infants were admitted to neonatal units felt that they were 'encouraged and empowered' to participate in their infants cares by some nurses while feeling disempowered and unsupported by others (Flacking et al 2006 p75). This study highlighted the fact that nurses who were supportive and non judgemental were able to develop trustful staff-mother relationships (Flacking et al 2006 p77). When mothers experienced trustful bonds with nurses their self esteem was enhanced (Flacking et al 2006 p75). This study highlighted that nurses have the authority to reject or include mothers and are crucial in assisting the mother to become involved and develop a mother-infant bond (Flacking et al 2006 p79). Orapiriyakul et al (2007 p261) proposed that nurses need to work together with mothers to support their emotional grief and concern to help them work through the crisis situation and attach to their baby. Therefore the degree of intimacy mothers achieved with their infant is largely dependent on the nature of the social and emotional environment and support created by the nurse (Fenwick et al 2008 p80).

Communication

The importance of mother-nurse communication to assist in mother-infant attachment was reported in three studies. All agreed that nurses who communicated with mothers by providing constant information and updates on the baby's health condition, helped mothers to understand their health needs which eased anxiety (Orapiriyakul et al 2007 p259; Mok and Leung 2006 p730; Fenwick et al 2001 p586). Fenwick et al (2001) asserted that communication in the form of 'chatting' is a way of facilitating mothering in the neonatal unit. This engagement was highly valued by mothers and helped them to feel relaxed and establish confidence within the unit (Fenwick et al 2001 p586). Most significantly for this review, it facilitated a sense of control and connectedness with their infant (Fenwick et al 2001 p586).

DISCUSSION

This review of the literature suggests that admission to the neonatal intensive care unit restricts the natural process of attachment and that many mothers struggle to get connected with their infant. This study also concludes that nurses who encourage mother-infant interaction through kangaroo care (KC), breastfeeding, participation in routine care, alongside mother-nurse interaction through psychosocial support and effective communication, are central to helping the vital connections between the mother and her infant.

KC has a positive, multidimensional impact on mother-infant interaction and attachment, infant development and self regulation as well as the mother's mood and behaviour. However, there were also expressed concerns related to infant safety (dislodging of equipment), time restraints and nursing shortage to supervise the technique (Chia and Sellick 2005 p25). Because KC has been acknowledged in promoting mother-infant attachment and parental confidence, nurses are in a unique position to initiate such practices and facilitate this important mother-infant acquaintance. However, Hunt (2008 p48) states that KC is not a standard practice in every hospital. Therefore, effective practice policies need to be identified and implemented.

Major barriers have been highlighted with the practice of KC, such as infant safety, nursing staff reluctance, nurses' fear of something going wrong, minimal staff and time constraints (Chia and Sellick 2005 p25; Engler et al 2002 p150). A national survey of the United States of America indicated that a lack of guidelines, experience and information were major barriers towards the use of KC (Engler et al 2002 p150). Engler et al (2002 p151) suggests that 'nurses need educational offerings highlighting the knowledge and skills needed to provide KC safely and effectively'. Nurses need further experience, support, evidenced-based policies and procedures from knowledgeable practitioners and educational offerings that emphasise the value of KC to the mother and infant (Engler et al 2002 p151). This is also supported by Wallin et al (2004) who highlight

that evidence based guidelines are essential, as a lack of protocols will inhibit the provision of KC in both general wards and NICUs. Raby et al (2008 p199) also acknowledge, that not all mother-infant dyads within the neonatal intensive care unit require the same amount of care and relevant staffing guidelines for patient-nurse ratios do not consider infants with complications or additional needs. Therefore, to minimise the perceived barriers by nurses to use KC, addressing appropriate evidenced based standards with consideration to staffing for KC practice may assist in a successful KC experience and facilitate mother-infant attachment.

Breastfeeding has also found to be extremely important to mothers of term and preterm infants in contributing to care and being close to their baby (Griffin 2006 p100). This is supported by Flacking et al (2006 p74) who suggest that once an infant is medically stable, breastfeeding is a method that can facilitate mother-infant attachment. To promote this personal interplay Karl et al (2006 p259) also highlight breastfeeding as a supporting intervention that can be encouraged by nurses to maximise contact between mothers and their babies. Therefore given that breastfeeding is known to support the mother-infant attachment process, it is surprising that a review of the literature provided minimal results. Further research is required into national best practices for implementing breastfeeding in the neonatal intensive care unit to support mother-infant attachment.

In the beginning parents are often spectators and become independent caregivers supported by nurses when preparing for discharge from the neonatal intensive care unit (Fegran et al 2008 p 369). However some health professionals remain concerned that maternal presence can interfere with specialised medical care (Martinez et al 2007 p.242). Martinez et al (2007 pp42-45) found mother involvement to be supported, only if it does not invade specialised care, proposing that maternal presence can interfere with work dynamics, especially during complex procedures and clinical tests. Alternately, Franck and Spencer (2003 p35) argue that nurses should

take every opportunity to encourage and educate mothers in participating in their infants care, while considering all factors that might influence safe parental participation to facilitate mother-infant attachment. Similarly, Fegran et al (2008 p369) suggests that it is vital for mothers to maintain a close relationship with the primary nurse to meet the demands of increased participation. Practice standards should therefore reflect a commitment to assisting parents to achieve a high level of contact and participation in their infants care.

For many mothers visiting their baby in hospital, the competing demands of caring for other children, managing paid employment and the family home resulted in exhaustion (Fegran et al 2008 p367). The development of a trustful relationship with nurses in the unit was important to mothers during this stressful period (Fegran et al 2008 p368). Nurses need to consider financial and social difficulties that parents may experience as a result of having their infant hospitalised (Eriksson and Pehrsson 2002 p28). This psychosocial support from nurses may assist mothers to deal with these multiple and competing demands and therefore have time and energy to connect with their infant. Nurses are part of the formal networks that mothers turn to for support. Nurses therefore need appropriate education about the psychosocial needs of mothers. Staff education and policies need to be evaluated regarding support networks for mothers to minimise stress. Patient-nursing ratios need to be considered to accommodate mothers' psychosocial needs as many mothers require more support than what they receive (Mok and Leung 2006 p733).

The findings of this review also show that mothers of infants in a NICU strongly conveyed the need of support, trust and in particular verbal information to help them to interact and understand their infant's needs. Open communication is considered a fundamental principle to successful family centred care but can be a major challenge for mothers and nurses within the NICU environment (Johnson 2008 p55). Nurses need to care about the way in which mothers feel about themselves and be supportive

and respectful of the mothers input (Karl et al 2006 p260). Nurses who engage with mothers are good listeners and share their observations with the mother (Karl et al 2006 p260). They also talk about the infant with the mother, asking open ended questions which allow the mother to feel like they are 'good' mothers, who are involved in their baby's care (Karl et al 2006 p260). Neonatal staff must act as role models, be open to answering questions and be supportive of the mothers concerns (Fegran et al 2008 p369; Franklin 2006 p.82). Therefore nurses need to be aware of their authority and positively assert non-judgemental, trustful and open relationships with mothers. Practice standards should reflect nursing commitment to support open relationships where nurses engage with mothers to ease their anxiety. Staff education should aim towards positive communication and support to provide family focused care.

CONCLUSION

The process of attachment is complex and is influenced by a number of factors including environmental circumstances, the infants and mothers' health status, emotional grief and the quality of nursing care (Orapiriyakul et al 2007 p260). This review of the literature has shown that the neonatal intensive care unit environment and nursing staff can restrict the natural process of attachment for many mothers and their infants. The mother-infant attachment process can be highly influenced by mother-infant and mother-nurse interactions. The key recommendations from this review are that nurses need to minimise mother and infant separation by promoting mother-infant interaction through kangaroo care, breastfeeding and participation in care. This review has also identified that promoting nurse-mother interaction through psychosocial support and communication by establishing a trustful and caring relationship can enhance the mother-infant attachment process. Therefore increased knowledge and evidenced based research is needed to help implement these practices to assist the mother-infant dyad. The nurse must consider the shared needs of the mother and baby by incorporating technical expertise with family

focused care. Nurses working in neonatal intensive care units need to construct nursing care of the infant towards the mother-infant dyad, with roles and responsibilities that incorporate mother-infant and mother-nurse relationships in support of the mother-infant attachment process.

REFERENCES

Bialoskurski, M., Cox, C. and Hayes, J. 1999. The Nature of Attachment in a Neonatal Intensive Care Unit. *The Journal of Perinatal & Neonatal Nursing,* 13(1):66-77.

Blackburn, S. 1998. Environmental Impact of the NICU on Developmental Outcomes. *Journal of Pediatric Nursing,* 13(5):279-289.

Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology,* 3:77-101.

Chia, P. and Sellick, K. 2005. The Attitudes and Practices of Neonatal Nurses in the Use of Kangaroo Care. *Australian Journal of Advanced Nursing,* 23(4):20-27.

Critical Appraisal Skills Programme (CASP). 2006. *10 questions to help you make sense of qualitative research.* Public Health and Resource Unit [cited 15 November 2008]. Available from http://www.phru.nhs.uk/Doc_Links/Qualitative%20Appraisal%20Tool.pdf.

Engler, A., Ludington-Hoe, S., Cusson, R., Adams, R. and Bahnsen, M. 2002. Kangaroo Care: National Survey of Practice, Knowledge, Barriers, and Perceptions. *MCN The American Journal of Maternal/Child Nursing,* 27(3):146-153.

Eriksson, B. and Pehrsson, G. 2002. Evaluation of psycho-social support to parents with an infant born preterm. *Journal of Child Health Care,* 6(1):19-33.

Erlandsson, K. and Fagerberg, I. 2004. Mothers' lived experience of co-care and part-care after birth, and their strong desire to be close to their baby. *Midwifery,* 21(2):131-138.

Fegran, L., Fagermoenm, M.S. and Helseth, S. 2008. Development of parent-nurse relationships in neonatal intensive care units - from closeness to detachment. *Journal of Advanced Nursing,* 64(4):363-371.

Feldman, R. 2004. Mother-Infant Skin-to-Skin Contact (Kangaroo Care) Theoretical, Clinical, and Empirical Aspects. *Infants and Young Children,* 17(2):145-161.

Feldman, R., Eidelman, A., Sirota, L. and Weller, A. 2002. Comparison of Skin-to-Skin (Kangaroo) and Traditional Care: Parenting Outcomes and Preterm Infant Development. *Pediatrics,* 110(1):16-26.

Fenwick, J., Barclay, L. and Schmied, V. 2001. 'Chatting': an important clinical tool in facilitating mothering in neonatal nurseries. *Journal of Advanced Nursing,* 33(5):583-593.

Fenwick, J., Barclay, L. and Schmied, V. 2008. Craving closeness: A grounded theory analysis of women's experiences of mothering in the Special Care Nursery. *Women and Birth,* 21(2):71-85.

Flacking, R., Ewald, U., Nyqvist, K.H. and Starrin, B. 2006. Trustful bonds: A key to "becoming a mother" and to reciprocal breastfeeding. Stories of mothers of very preterm infants at a neonatal unit. *Social Science & Medicine,* 62(1):70-80.

Franck, L. and Spencer, C. 2003. Parent Visiting and Participation in Infant Caregiving Activities in a Neonatal Unit. *BIRTH,* 30(1):31-35.

Franklin, C. 2006. The Neonatal Nurse's Role in Parental Attachment in the NICU. *Critical Care Nursing Quarterly,* 29(1):81-85.

Gale, G., Flushman, B., Heffron, M. and Sweet, N. 2004. Chapter 4 Infant Mental Health: A New Dimension to Care. In *Development Care of Newborns & Infants A Guide for Health Professionals*, edited by K. Carol and M. Jacqueline. St Louis, USA: Mosby.

Griffin, T. 2006. Family-Centered Care in the NICU. *Journal of Perinatal Neonatal Nursing,* 20(1):98-102.

Heermann, J., Wilson, M., and Wilhelm, P. 2005. Mothers in the NICU: Outsider to Partner. *Pediactric Nursing,* 31(3):176-181.

Hunt, F. 2008. The importance of kangaroo care on infant oxygen saturation levels and bonding. *Journal of Neonatal Nursing,* 14(2):47-51.

Johnson, A. 2007. The Maternal Experience of Kangaroo Holding. *JOGNN Clinical Research,* 36:568-573.

Johnson, A. 2008. Promoting Maternal Confidence in the NICU. *Journal of Pediatric Health Care,* 22(4):254-257.

Karl, D., Beal, J., O'Hare, C. and Rissmiller, P. 2006. Reconceptualizing the Nurse's Role in the Newborn Period as an Attacher. *The American Journal of Maternal Child Nursing,* 31(4):257-262.

Martinez, J., Fonseca, L. and Scochi, C. 2007. The Participation of Parents in the Care of Premature Children in a Neonatal Unit: Meanings attributedby the Health Care Team. *Marco-Abril,* 15(2):239-246.

Mok, E. and Leung, S. 2006. Nurses as providers of support for mothers of preterm infants. *Journal of Clinical Nursing,* 15(6):726-734.

Neu, M. 1999. Parents' Perception of Skin-to-Skin Care With Their Preterm Infants Requiring Assisted Ventilation. *JOGNN Clinical Studies,* 28(2):210-217.

Orapiriyakul, R., Jirapaet, V. and Rodcumdee, B. 2007. Struggling to Get Connected: The Process of Maternal Attachment to the Preterm Infant in the Neonatal Intensive Care Unit. *Thai Journal of Nursing Research*, 11(4):251-264.

Raby, C., Dowse, T. and Bennet, L. 2008. Postpartum/newborn patients: who are they and do they all need the same amount of nursing care? *Journal of Nursing Management,* 16(2):198-203.

Ramona, M. and Walker, L. 2006. A Review of Nursing Interventions to Foster Becoming a Mother. *Journal of Obstetric, Gynecologic, & Neonatal Nursing,* 35(5):598-582.

Roberts, K. and Taylor, B. 2002. *Nursing Research Processes An Australian Perspective*. Second Edition ed. Victoria, Australia: Thomson.

Roller, C. 2005. Getting to Know You: Mothers' Experiences of Kangaroo Care. *JOGNN Clinical Research,* 34(2):210-217.

Toivonen, J. *Being the parent of a NICU/SCN baby*. National Premmie Foundation 2008 [cited 24/11/2008. Available from http://www.prembaby.org.au/prematurity-information/.

University of Salford. 2001. *Evaluation tool for Mixed Studies*. HCPRDU Health Care Practice Research and Development [cited 15 November 2008]. Available from http://www.fhsc.salford.ac.uk/hcprdu/tools/mixed.htm.

Wallin, L., Rudberg, A. and Gunningberg, L. 2004. Staff Experiences in Implementing Guidelines for Kangaroo Mother Care. *International Journal of Nursing Studies,* 42(1):61-73.

Wigert, H., Johanson, R., Berg, M. and Hellstrom, H. 2006. Mothers' experiences of having their newborn child in a neonatal intensive care unit. *Nordic College of Caring Science,* 20(1):35-41.

Venous Thromboembolism Prophylaxis: The role of the nurse in changing practice and saving lives

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KEY WORDS

Nursing, venous thromboembolism, risk assessment,
prophylaxis.

ABSTRACT

Background
Venous thromboembolism (VTE) predominantly afflicts
surgical and medical patients in an acute hospital
setting. Responsibility for VTE risk assessment and
appropriate prophylaxis to prevent this major health
burden rests with a variety of clinical staff. All too
frequently, however, patients do not undergo VTE
risk assessment on admission. This is regardless of
the fact that a number are at risk for VTE, receive no
prophylaxis and unknowingly are at risk of serious
adverse events including death.

Objective
The broad aims of this paper is to provide evidence
based information on VTE and to report on the rate
of appropriate VTE prophylaxis pre and post nursing
educational sessions.

Setting
This paper describes a nurse led initiative undertaken
at a tertiary level acute care facility in Queensland.

Subjects
A clinical audit was conducted on 2,063 hospitalised
inpatients

Primary argument
Nurses who are empowered through evidence based
education sessions can take responsibility for VTE
risk assessment of all admitted patients and ensure
appropriate VTE prophylaxis is provided. The rates for
appropriate prophylaxis in admitted patients at risk of
VTE increased from 27% to 85% (p< 0.0001). Through
appropriate prophylaxis of patients at risk of VTE, the
incidence of VTE will be significantly reduced.

Conclusions
Nurses who are committed to VTE risk assessment and
prophylaxis have the ability to contribute significantly to
the reduction of VTE and its subsequent complications.

INTRODUCTION

VTE is the term that describes two clinical conditions: deep vein thrombosis (DVT) and pulmonary embolism (PE). DVT occurs when a blood clot or thrombus forms in a deep vein, usually restricting blood flow. Pulmonary embolism occurs if the thrombus dislodges and travels to the lungs. Michota (2007) stated that VTE is considered to be the most common preventable cause of hospital related death.

Symptomatic VTE is a major health problem. In Australia, it is estimated that VTE will affect approximately 15,000 individuals and be responsible for over 5,000 deaths each year (Access Economics 2008). The financial burden of VTE on the health care system is considerable and is estimated to be as much as $1.72 billion (Access Economics 2008). Symptomatic PE results in sudden death in about 25% of cases (Heit et al 2001). The morbidity associated with DVT is often under recognised and includes serious long term complications such as chronic venous insufficiency, chronic oedema, chronic pain and recurrent venous ulceration, collectively known as the post-thrombotic syndrome (Kahn 2006; Ziegler et al 2001).

As the deaths due to VTE occur before treatment can be instituted and the post thrombotic syndrome occurs in spite of treatment, the only way to prevent these complications is to prevent VTE from occurring. VTE is recognised as having a high risk in a proportion of surgical, medical and obstetric clients in the acute care system with about 50% of all cases of VTE in our community occurring following recent hospitalisation (Heit 2003). It is also a significant risk for the chronically ill in the community and to residents of aged care facilities. Effective prophylaxis using anticoagulants and/or mechanical devices such as compression stockings or intermittent pneumatic compression reduce the development of VTE by about 80% (Collins et al 1988; Clagett and Reisch 1988).

The Access Economics Report (2008) also identified that there was lack of a systematic approach to prevent VTE in many Australian hospitals. Internationally and nationally, the assessment of patients who may be at risk is not uniformly undertaken and despite the availability of evidence based guidelines for VTE prophylaxis, many patients receive no prophylaxis (Cohen et al 2008) and are thus unknowingly at risk for VTE development in hospital and for some weeks following discharge. Many clinicians would advocate that VTE risk assessment and appropriate prophylaxis should be mandatory for all patients requiring hospital admission.

The aims of this paper are twofold. Firstly, the reader is provided with comprehensive, evidence based information on VTE. The risk factors for all categories of clients are identified with the recommended prophylactic management of this avoidable condition. The authors hope the information contained will be a useful resource for clinical nurses and those health professionals who are closely involved in direct patient care. Secondly, this paper reports on an initiative implemented in the Princess Alexandra Hospital, Brisbane where nurses were empowered to make a change to the culture of VTE prevention. This has significant implications for the role of the nurse in the assessment and prevention of VTE and is an example of the success of nurses in implementing major changes to healthcare practice, patient advocacy being a primary concern of the nursing profession (Hanks 2008).

VTE RISK STRATIFICATION

There are several evidence based guidelines available and clinicians should be aware of the recommendations for patients in their care but also use clinical judgement to treat each client individually. Hospitalised patients can be broadly subdivided into surgical, medical and obstetric groups and the risk within these groups can be identified by the specific conditions or the planned surgical procedure (table 1). Immobility, thrombophilia, oestrogen therapy, active inflammation, strong family history of VTE and/or obesity all are associated with a higher risk for VTE during hospitalisation (ANZ Working Party 2007). The presence of these factors emphasise the importance of individualised VTE risk assessment.

Table 1: VTE Risk Stratification

Risk Assessment		
Category	Medical Patients	Surgical Patients
High	Ischaemic Stroke, History of VTE, Decompensated cardiac failure, Active cancer, Acute on chronic lung disease, Acute on chronic inflammatory disease, Age> 60 years (unless well and ambulant)	Hip or knee arthroplasty Major Trauma Hip fracture surgery Other surgery with prior VTE and/or active cancer Major surgery age> 40yrs
Low	Minor medical illness.	All other surgery

Obstetric patients

Several factors may increase the risk of VTE during pregnancy including caesarean section, obesity and advanced maternal age. Specific conditions considered to place the mother at high risk include a history of unprovoked or pregnancy associated VTE and the presence of one or more thrombophilia's eg. Antithrombin III deficiency and Antiphospholipid Syndrome.

VTE PROPHYLAXIS

For effective VTE prophylaxis of all patients, it is important to assess according to their individual VTE risk, taking into account their clinical condition, the potential bleeding risk and the appropriateness of the prophylaxis for the individual patient. The assessment for VTE prophylaxis should occur on admission to hospital and prophylaxis should commence without undue delay and be re-assessed on a regular basis to ensure prophylaxis remains appropriate.

It is important to note within some groups of patients, VTE risk may persist for weeks. Many of these patients will be discharged from hospital before the risk abates and thus the prophylaxis requires to be prolonged. Continued encouragement of early and frequent ambulation (Geerts et al 2008) and adequate hydration are important principles in all patients regardless of risk category. Two main categories of VTE prophylaxis have been shown to be effective and can be divided into the pharmaceutical agents and mechanical devices.

Pharmaceutical agents

The effectiveness of subcutaneous low-dose unfractionated heparin (LDUH), low molecular weight heparin (LMWH), Fondaparinux, Rivaroxaban and Dabigatran for preventing VTE have been well established. There is a requirement for VTE prophylaxis protocols with medical practitioners selecting the dose, dosage interval and brand of prophylactic agent for each individual patient having referred to full product information.

Aspirin may have at best a weak protective effect against DVT but is generally not recommended for prophylaxis (Geerts et al 2008). Adjusted dose warfarin may have a role in some high risk surgical patients but requires close monitoring of its effect (Clagett and Reisch 1988; Mismetti et al 2004)

Mechanical devices

Two main types of mechanical devices are widely used in the prevention of VTE Graduated Compression Stockings (GCS) and Intermittent Pneumatic Compression (IPC). The National Institute for Health and Clinical Guidelines (2007) in the United Kingdom states that GCS reduce the risk of DVT by 51%. While studies have generally involved thigh length stockings (Sajid et al 2006), it is accepted that below knee stockings are as effective in reducing the risk of DVT development in most patients. IPC reduces the incidence of DVT and is more effective than GCS in high risk patients in combination with anticoagulants or when anticoagulants are contraindicated (MacLellan and Fletcher 2007).

To be effective, GCS or IPC should be measured and fitted for the individual patient and should be worn continuously during the period of immobility to the return of full ambulation. Patient compliance is essential e.g. ensuring their stockings are not rolled down to the ankle. Incorrectly fitting stockings invariably do not provide the graduated compression required for prophylaxis and can cause more harm than benefit to patients.

Are there any contra-indications to prophylaxis?

There are contra-indications to prophylaxis and thus the type of prophylaxis selected must be specifically tailored to the individual patient.

Pharmaceutical prophylaxis

Bleeding is the major complication of anticoagulant treatment and the relative risks for bleeding versus VTE must be considered when commencing anticoagulation. Contraindications to anticoagulant prophylaxis include:

- active bleeding
- high risk of bleeding e.g. thrombocytopenia, history of gastrointestinal bleeding, severe hepatic disease
- prior adverse reaction to heparin
- concurrent anticoagulation
- renal impairment (estimated glomerular filtration rate < 30mls/min)

Mechanical prophylaxis

Reported complications with GCS and IPC are rare but include the lower limb compartment syndrome, skin ulceration and common peroneal nerve palsy. Most importantly, they should not be used in limbs with severe or critical ischaemia and other contraindications to mechanical prophylaxis include significant peripheral neuropathy, recent skin graft and severe leg deformity.

COMPLIANCE WITH GUIDELINE RECOMMENDATIONS

All admitted patients should have a VTE risk assessment as part of their hospital admission and receive optimal VTE prophylaxis according to their level of risk and existing contraindications. Adherence to the VTE prevention guidelines are not embedded into routine clinical practice internationally or in Australia (Cohen et al 2008). Systematic approaches to ensuring appropriate VTE prophylaxis are required. Traditional methods of information dissemination such as didactic education and publication of guidelines do not lead to sustained system change (Tooher et al 2005). Active education, reminders and audit and feedback are methods have been shown to effect improvement in VTE prophylaxis use (Michota 2007). VTE risk assessment and prescribing of VTE prophylaxis has traditionally been a medical practitioner responsibility and nursing has had limited active role in identifying patients at risk and advocating for the appropriate VTE prophylaxis.

VTE Prophylaxis guideline implementation program

In November 2005, the Princess Alexandra Hospital in Brisbane commenced a hospital wide VTE prophylaxis guideline implementation project as part of a program undertaken by the National Institute of Clinical Studies. This initiative was based on the three key components of clinician action for quality improvement, published in the Clinicians Toolkit for Quality Assurance by the NSW Government (2001, p.1).

1. Developing the knowledge and skills for understanding human performance, the systems of care and for minimising and dealing with error.

↓

2. The application of methods to identify, measure and analyse problems with care delivery.

↓

3. Action upon that information to improve both the individual and the systemic aspects of care delivery.

1. Developing the knowledge and skills for understanding human performance, the systems of care and for minimising and dealing with error: A full time VTE Clinical Nurse Consultant was employed to implement a multifaceted hospital wide VTE prophylaxis program in collaboration with a vascular physician. This VTE prevention program included active education, paper based and personal reminders, audit and feedback on appropriate VTE prophylaxis rates.

2. The application of methods to identify measure and analyse problems with care delivery: There was a focus on up skilling and empowering nursing staff to identify patients at risk of VTE, for nurses to initiate mechanical prophylaxis where appropriate and to advocate for optimal pharmaceutical prophylaxis if not appropriately prescribed. In patients attending pre-admission clinic prior to a planned hospital admission, the nurses provided the patient with information on VTE risk and encouraging the patient to discuss the appropriateness of VTE prophylaxis with their medical practitioner.

3. Action upon that information to improve both the individual and the systemic aspects of care delivery: An annual bedside clinical audit was conducted to evaluate the effectiveness of the program. A total of 2063 patients have been audited over five years with medical patients accounting for 62% (table 2). Overall, the majority of hospitalised patients were at risk of developing VTE (figure 1) and this nurse-led program has seen whole of hospital appropriate VTE prophylaxis rates in at risk patients improve from 27% in 2005 to 85% in 2009. All yearly results were able to show a highly statistical significance ($P < 0.000.1$) in comparison to the 2005 baseline (figure 2). This improvement in appropriate VTE prophylaxis in at risk patients was not associated with any increase in inappropriate administration of VTE prophylaxis in patients not at risk (figure 3).
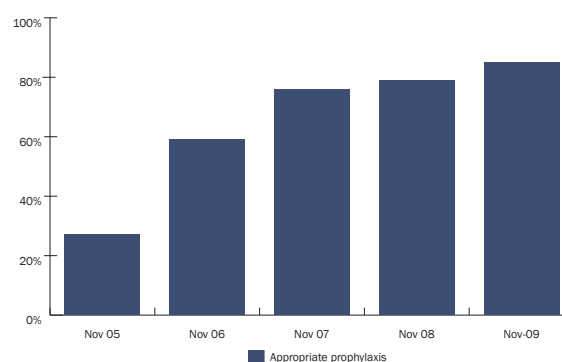
Table 2: VTE Patient Audit Results 2005-2009

	Nov 2005	Nov 2006	Nov 2007	Nov 2008	Nov 2009
Total	345	401	520	359	438
Medical patients	230	257	321	200	263
Surgical patients	115	144	199	159	175

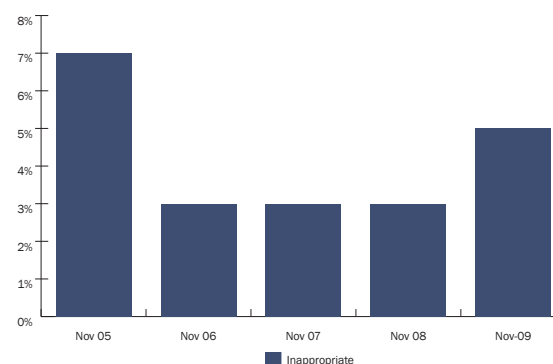**Figure 1: Risk stratification**
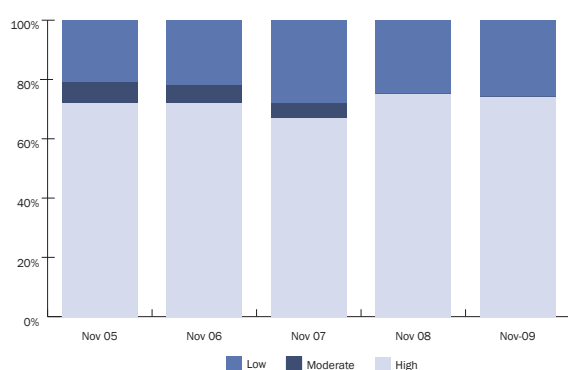
Figure 2: Appropriate VTE prophylaxis in at risk patients, P<0.0001 (All Years)

Figure 3: Inappropriate VTE prophylaxis in at risk patients

The nursing team was led by a clinical nurse consultant (CNC) qualified in VTE risk stratification and evidence based VTE prophylaxis. Various educational strategies were implemented including small group sessions, self directed learning packages, module based learning and six monthly workshops. These measures were aimed at upskilling nurses and to encourage them to take ownership of VTE risk assessment. They were supported by the VTE clinical nurse consultant who demonstrated leadership by empowering the nurses to become equal partners with the other team members in the delivery of healthcare (Sorensen et al 2008).

DISCUSSION

The role and status of nursing has improved dramatically over the last few decades and continually evolves. Many factors have influenced the delivery of high quality healthcare by the nursing profession including health service restructuring, technological advances, increased postgraduate nursing education, a relative shortage of medical practitioners and the increasing recognition of the

expert clinical skills of nurses in providing optimum healthcare (Schober 2007; Gardner and Gardner 2005). Not only is Australia producing highly expert advanced practice nurses and nurse practitioners, the roles of the enrolled and registered nurses working in our public hospital system are also being extended.

Nursing is the largest professional group involved in direct clinical care within the healthcare system. Nurses with expert knowledge and strong leadership skills can have a prominent role in influencing and implementing changes to healthcare practices (Schober 2007). The role of the nurse is extending beyond the traditional boundaries and so a 'patient centred' philosophy should be adopted by all health professionals to improve relationships and reduce the requirement for territorial professional boundaries.

It is anticipated that as other health professions become better educated and more aware of the potential of the nursing role, nurses working beyond the traditional role will become more accepted (Schober 2007). This will be achieved by collaboration with other health professionals and by nurses having the confidence and expert knowledge to contribute effectively to the healthcare team. Collaboration, as stated by Horak et al (2006) is about working effectively together as a team and the cornerstone of this collaborative practice is the patient, their needs and the requirement to achieve optimum outcomes. If there can be increased flexibility between nursing and other health professionals as suggested by Carryer et al (2007) then certain tasks that have traditionally been considered to be non-nursing could quite effectively be undertaken by nurses. An excellent example of this is the nurse's role in risk assessment for VTE (Bonner et al 2008).

Nurses are educated and trained in optimising client healthcare by providing expert nursing, based on an holistic nursing model and a commitment to evidence based practice (Thiel and Ghosh 2008; Gagan and Hewitt-Taylor 2004). It is through the holistic model of care that nurses ensure clients are protected from avoidable adverse events during their stay in healthcare facilities. Such adverse events include the development of pressure ulceration, healthcare associated infections (chest, urinary tract or wound), falls, medication errors or the development of VTE. Unfortunately, VTE appears to have a considerably lower profile in comparison to the other adverse events but has a higher associated mortality and is the number one target to improve patient safety in hospitals in terms of efficacy and cost effectiveness (Shojania et al 2001).

CONCLUSION

Nurses can play a major role in VTE prevention if well educated and empowered to change hospital culture as this paper has demonstrated. Their increased level of knowledge undoubtedly leads to an improvement in the delivery of patient care. Appropriately trained nurses are skilled in assessing the risk of VTE in their clients and ensuring prophylactic measures are in place for those clients who are particularly vulnerable to developing VTE. Even in the absence of a medical practitioner, the nurses can initiate appropriate mechanical measures.

It is therefore vital that both hospital and community nurses accept responsibility for ensuring the safety of their clients by routinely assessing for VTE and for checking that the appropriate prophylactic measures have been initiated for all hospitalised patients. Nurses are well positioned to change the culture and improve outcomes for our clients. In doing so, nurses will ensure our health dollar is not wasted and our clients suffering is reduced.

The results in this paper should encourage nurses to work together as key members of the multi-disciplinary team and client advocates in order to reduce the unacceptable incidence of VTE in our community. The nursing profession must adopt a 'can do' attitude and ensure that we actively promote measures to protect the clients who are currently in our care. In doing this, there is no doubt that lives will be saved.

REFERENCES

Access Economics. 2008. The burden of venous thromboembolism in Australia. Report by Access Economics Pty Limited for the Australia and New Zealand Working Party on the Management and Prevention of Venous Thromboembolism.

Australian and New Zealand Working Party (ANZ Working Party). 2007. Best Practice Guidelines on the Management and Prevention of Venous Thromboembolism (VTE). (4th Ed.).

Bonner, L., Cocker, E., Wood, L. 2008. Preventing Venous Thromboembolism through risk assessment approaches. *British Journal of Nursing*, 17(12):778-782.

Carryer, J., Gardner, G., Dunn, S., and Gardner, A. 2007. The core role of the nurse practitioner: practice, professionalism and clinical leadership. *Journal of Clinical Nursing, 16*(10):1818-1825.

Clagett, G.P. and Reisch J.S. 1988. Prevention of venous thromboembolism in general surgical patients: results of a meta-analysis. *Annals of Surgery*, 208(2):227-240.

Cohen, A., Tapson, V., Bergmann, J.F., Goldhaber,S., Kakkar, A., Deslandes, B., Huang, W., Zayaruzny, M., Emery, L. and Anderson, F.A. 2008. Venous Thromboembolism risk and prophylaxis in the acute hospital care setting (ENDORSE study):a multinational cross-sectional study. *Lancet*, 371(9610):387-394.

Collins, R., Scrimgeour, A., Yusuf, S. and Peto, R. 1988. Reduction in fatal pulmonary embolism and venous thrombosis by perioperative administration of subcutaneous heparin: overview of results of randomised trials in general, orthopaedic and urologic surgery. *New England Journal of Medicine*, 318(18):1162-1173

Gagan, M. and Hewitt-Taylor, J. 2004. The issues for nurses involved in implementing evidence in practice. *British Journal of Nursing*, 13(20):1216-1220.

Gardner, A. and Gardner, G. 2005. A trial of nurse practitioner scope of practice. *Journal of Advanced Nursing, 49*(2):135-145.

Geerts, W., Bergqvist, D., Pineo, G., Heit, J., Samama, C., Lassen, M. and Colwell, C. 2008. Prevention of Venous Thromboembolism: American College of Chest Physicians Evidence Based Practice Guidelines (8th Edition). *Chest*, 133(6):381S-453S

Hanks, R. 2008. The Lived Experience of Nursing Advocacy. *Nursing Ethics* 15(4):468-477.

Heit, J. 2003. Risk factors for venous thromboembolism. *Clinics In Chest Medicine*, 24(1):1-12

Heit, J., Silverstein, M., Mohr, D., Petterson, T., Lohse, C., O'Fallon, M. and Melton, J. 2001. The Epidemiology of Venous Thrombembolism in the Community. *Thrombosis and Haemostasis*, 86(1):452-463

Horak, B., Hicks, K., Pellicciotti, S. and Duncan, A. 2006. Recruitment and Retention Report: Create cultural change and team building. *Nursing Management*, 37(12):12-14.

Kahn, S. 2006. The Post-thrombotic Syndrome: The Forgotten Morbidity of Deep Vein Thrombosis. *Journal of Thrombosis and Thrombolysis, 21*(1):41-48.

MacLellan, D.G. and Fletcher, J., 2007. Mechanical Compression in the Prophylaxis of Venous Thromboembolism. *ANZ Journal of Surgery,* 77(6):418-423.

Michota, F .2007. Bridiging the Gap Between Evidence and Practice in Venous Thromboembolism Prophylaxis: The Quality Improvement Process. *Journal of General Internal Medicine,* 22 (12):1762-1770.

Mismetti, P., Laporte, S., Zufferey, P., Epinat, M., Decousus, H. and Cucherat, M. 2004. Prevention of venous thromboembolism in orthopaedic surgery with vitamin K antagonist: a meta-analysis. *Journal of Thrombosis and Haemostasis,* 2(7):1058-1070.

National Institute for Health and Clinical Excellence. 2007. Venous Thromboembolism: Reducing the risk of venous thromboembolism in patients undergoing surgery. *Clinical guideline No. 46.*

NSW Health: The Clinician's Toolkit for improving patient care 2001. http://www.health.nsw.gov.au/pubs/2001/pdf/clintoolkit.pdf (accessed 08.02.2010).

Sajid, M., Tai, N., Goli, G., Morris, R., Baker, D. and Hamilton, G. 2006. Knee versus Thigh Length Graduated Compression Stockings for the Prevention of Deep Venous Thrombosis: A Systematic Review. *European Journal of Vascular Endovascular Surgery,* 32(6):730-736.

Schober, M. 2007. The Global Emergence of Advanced Practice Nurses in Providing Home and Community Health Care Services. *Home Health Care Management Practice,* 20(1):34-40.

Shojania, K.G., Duncan, B.W., McDonald, K.M. and Wachter, R.M. 2001. Making health care safer: a critical analysis of patient safety practices; evidence report/technology assessment No. 43. *AHRQ Publication No. 01-E058*.

Sorensen, R., Iedema, R. and Severinsson, E. 2008. Beyond profession: nursing leadership in contemporary healthcare. *Journal of Nursing Management,* 16(5):535-544.

Thiel, L.; Ghosh, Y. 2008 Determining registered nurses' readiness for evidence-based practice. *Worldviews on Evidence-Based Nursing* 5(4):182-192.

Tooher, R., Middleton, P., Pham, C., Fitridge, R., Rowe, S., Babidge, W., Maddern, G. 2005. A Systematic Review of Strategies to Improve Prophylaxis for Venous Thromboembolism in Hospitals. *Annals of Surgery*. 241(3):397-415.

Ziegler, S.,Schillinger, M., Maca, T.H., Minar, E. 2001. Post Thrombotic Syndrome After Primary Event of Deep Vein Thrombosis 10 to 20 Years ago. *Thrombosis Research* 101(2):23-33.