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September - November 2012
Volume 30 Number 1

CONTENTS

RESEARCH PAPERS

SCHOLARLY PAPERS

AUSTRALIAN JOURNAL OF ADVANCED NURSING REVIEW PANEL: AUSTRALIA

AUSTRALIAN JOURNAL OF ADVANCED NURSING REVIEW PANEL: INTERNATIONAL

Case management the panacea for aged care?

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KEY WORDS

case management, residential aged care, staff/family relationships, nursing home, models of care

ABSTRACT

Aims

The aim of this study was to evaluate the influence of case management on family member or other care-giver involvement in residential aged care settings; staff-family relationships and family satisfaction with residential care.

Method

This was a controlled before and after study involving pre and post intervention testing and comparison between intervention and control groups from two 30 bed rural high care residential aged care facilities. Staff from the intervention facility underwent case management training and resources were allocated to implement case management. General demographic information was collected about the family member and the residents. The Family Involvement Questionnaire and the Family Perception of Care Tool was used pre and post intervention to determine the level of family involvement and their perception of care provided.

Results

Visiting levels increased in the intervention site but not the control site. No significant differences were found for the two sites over the two phases but increases were seen in correspondence, attendance at social activities, overseeing staff interactions, attendance at case conferences and rate of family member decision-making about treatments or care for the intervention site. The overall satisfaction with care and the relationships increased at the intervention site but the changes were not significant.

Conclusion

Although there were no statistically significant results due to the sample size, there were positive changes at the intervention site. Case management is a potentially suitable model of care in the aged care setting.

INTRODUCTION

The national aged care campaign 'Because We Care' led by the Australian Nursing Federation, focuses among other things, on increased staffing levels in aged care facilities in Australia. If the campaign enjoys continued success, and staff levels continue to increase in aged care settings it opens the way for far better models of care than are currently employed. A case management model of care may be the panacea for all the difficulties faced by workers, residents and their families in aged care settings.

A case management model of care was implemented in a 30 bed high level residential aged care facility in rural Victoria, in response to anecdotal reports of growing staff dissatisfaction with the perceived ineffective, task focused model of care which had evolved in the facility. The case management model implemented was investigated to determine if residents and their families expressed greater satisfaction with the care provided and their level of involvement, and whether relationships with staff improved.

Case management has been defined as 'a systemic process of assessment, planning, service coordination and/or referral and monitoring through which the multiple service needs of the client are met' (Smith 1991).

BACKGROUND

Case management in aged care settings has not been widely researched or adopted in practice in Australia, despite the need for effective models of care. Literature exists concerning case management models in aged care utilised in the US, though the reason for introduction and the models themselves are vastly different (Healy and Elliot 1999; Smith 1991). Healy and Elliot (1999) and Smith (1991) describe case management as replacing bureaucratic and task focused approaches to care with a comprehensive team approach to care which instils pride and ownership among nurses. Both studies found that residents benefited from improved communication with their caregivers, timely delivery of clinical services and improved relationships between staff and families.

Case management has been used successfully in Australia for decades in community based settings, but there remains little evidence of uptake of this model in other sectors.

Studies in Australia and overseas extoll the virtues of greater family participation in care, and evidence of effective family/staff partnerships exists (Maas et al 2004; Toyle et al 1996). Family members remain involved in the lives of their relatives following admission to long-term residential care (Gaugler et al 2004; Toyle et al 1996), and studies suggest that increased family involvement impacts positively on both residents and their families. A number of studies by Hertzberg (Hertzberg et al 2001; Hertberg and Ekman 2000) report the relationship between staff and relatives has been neglected because of approaches that centre on tasks.

AIM

A key objective of case management was to encourage greater participation in decision making for residents and their families and the delivery of holistic, integrated care. The study aimed to strengthen the partnership between staff and families with negotiated role definition rather than the accepted consultation and information giving partnership that existed. Evidence indicates that such negotiated partnerships are considered critical by families and benefit all stakeholders, especially residents (Smith 1991).

ETHICAL APPROVAL

Ethical approval for the research study was granted by the University of Melbourne Human Research Ethics Committee.

METHOD

This was a controlled before and after study with pre and post intervention testing and comparison between the intervention and control group from two 30 bed rural high care residential aged care facilities.

Residents and/or their families were invited to participate in the research project. Where the resident was not able to nominate a family member, nor consent themselves due to a cognitive deficit, nursing staff identified the responsible person and invited their participation. 76% from the intervention site and 77% from the control site agreed to participate in the study.

All potential participants were provided with a plain language statement, a consent form, a written questionnaire to obtain demographic information and the pre-test Family Involvement questionnaire and the Family Perceptions of Care Tool (FPCT).

Participants were asked to return post the signed consent and the pre-test questionnaires to the principle researcher in pre-paid envelopes. A follow up telephone call to all potential participants was undertaken to provide an opportunity for questions or address any concerns. Follow up calls at one month were made to non-respondents.

The Family Involvement Questionnaire (FIQ) measured five domains, including;

- involvement of the family member in social-emotional support activities:
- activities of daily living;
- instrumental activities of daily living;
- monitoring of care given; and
- directing care provided at the facility.

The FPCT was based on a tool devised by Maas et al (2004). The tool sought to quantify perceptions of the family and was divided into subscales including:

- overall care;
- nursing care;
- relationships; and
- environment.

Case management was then introduced at one facility for a period of six months. At the completion of the intervention period, participants at both sites were asked to complete the FIQ and FPCT again and return the surveys in supplied pre-paid envelopes, and results were compared and analysed.

INTERVENTION

A case management co-ordinator, in consultation with residents and their families, structured a model of case management and defined roles and responsibilities of each case manager. Initially all six assigned case managers were enrolled nurses with varying degrees of experience. Staff participation was voluntary and teams and residents were assigned by the case manager.

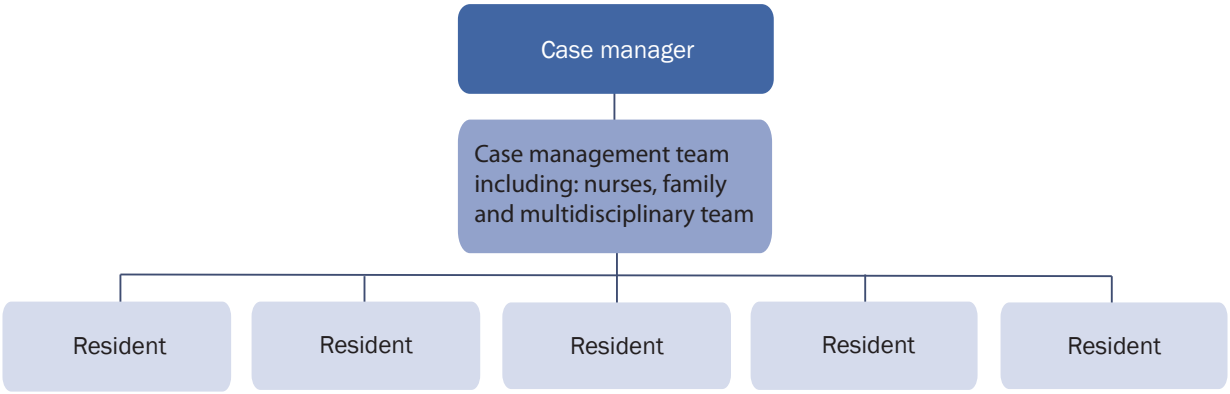
Staff at the Intervention Site then underwent six-months of case management education, implementation and restructuring of work programs. Each case manager was assigned a case management team of five-six staff from varied disciplines and levels of education and qualification (this included staff who worked in the activities program, environmental staff, and care staff who were either registered nurses or personal care attendants). A high level of staff support and consultation was available during the implementation phase.

Training and education focused on the application, aims and processes of case management methods. An explicit instruction on information gathering via biographical mapping in consultation with residents and relatives was given. Case managers were educated in the provision of holistic care, and collaboration with all stakeholders in formulating 'life' goals for residents. Interaction between nurses and families was a key element and explicitly stated as crucial to the success of the intervention.

Case managers were allowed six supernumerary hours per week to undertake case management activities, which could be taken in excess of usual clinical hours or as part of overall hours worked, but without day to day clinical responsibilities. Time spent in this six hours was focused on facilitating goal attainment, and coordinating multidisciplinary care for their five assigned residents, rather than managing the care and treatment of thirty residents and coordinating daily care staff activities which was expected as part of their usual role.

The model of case management introduced is represented in figure 1. There were six teams, with each case manager responsible for five residents.

Figure 1: Structure of each case management team.



RESULTS

Descriptive analyses using SPSS v15 were used to describe the characteristics of residents and their family members. Post-intervention, median, Wilcoxon Ranked Sign tests and McNemar tests were used to determine differences over time.

In comparing the pre and post-test level of family involvement using the Family Involvement Questionnaire, many of the items showed no change and none showed statistical significance (McNemar's Tests conducted on all items with no significant differences on any item). Those that did show changes are listed:

- There was an increase in the median number of visits of family members from the Intervention site from the pre-test month to the post test month (MED1 = 9.5, MED2= 12.0) however the difference was not significant (Wilcoxon Signed Rank Test Z=-.439, p=.660). For the Control Group the rate of visiting did not change (MED1= 14.0, MED2= 13.5, Wilcoxon Signed Rank Test Z = -.356, p=0.722).
- There were eight items of the Family Involvement Questionnaire about social-emotional support and there were changes on two items. Family members from the Intervention Site sent more letters in the post-test period (6, 37.5%) than in the pre-test phase (2, 12.5%). They also attended more social activities at the facility (7, 44% in pre-test, 10, 62.5% in post- test). For the Control Group, three (25%) sent letters in the pre-test phase and five (42%) in the post phase and more attended social activities at the facility (3, 25% pre-test, 4, 42% post-test).

- There were six items relating to activities of daily living, of which, one item showed changes between pre and post-test. For the Intervention Group, three (19%) recorded assisting their relative with toileting in the first month and two (12.5%) did so in the second month but in the Control Group the rate of assistance reduced from five (42%) to two (20%).
- One of the five items about instrument activities of daily living showed any change. Six (37.5%) family members of the Intervention Group reported transporting their relative to outside appointments in the post-test phase in comparison with four (25%) in the initial phase. For the Control Group, three (27%) did so post-test and four (33%) pre-test. There was no change in the high rate of family members managing their relatives' financial affairs for either facility (13, 81% for Intervention Group and 11, 92% for the Control Group).
- There were six items relating to monitoring care and four showed some change. Interestingly, there was a slight reduction in family members of the Intervention Group reported overseeing of the quality of their relatives' care (12 (75%) pre-test and 11 (69%) post-test but an increase in the Control Group's reported rate (9, 75% up to 10, 91%). For the Control Group, nine (75%) stated they had overseen the condition of their relative in the pre-test phase and this increased to 12 (100%) in post-test but there was no change in reported by the Intervention Group (11, 69%). In the Intervention Group the rate they reported overseeing staff interactions with their relatives increased (9, 60% to 11, 69%) and also increased for the Control Group (8, 67% up to 10, 83%). The reported rate of talking with staff about their relative improved from 12 (75%) to 15 (94%) for the Intervention Group but reduced for the Control Group (11, 69% down to 9, 60%).
- For items relating to directing care, three of the four items showed differences. For the Intervention Group, attendance at case conferences increased from three (18%) to eight (50%) but stayed constant for the Control Group (4, 33%). There was a slight increase in the giving suggestions about ways to care for their relative for both groups (Intervention Group 6, 37.5% pre-test and 8, 50% post-test; Control Group 5, 42% up to 6, 50%). The rate of decision-making about treatments or care of their relative doubled for the Intervention Group (pre-test 4, 25% up to 8, 50% post-test) and slightly reduced for the Control Group (7, 58% down to 6, 54%).

Table 1: Comparison of Pre-Test and Post-Test FPCT Scores for Intervention and Control Groups

	Intervention Group				Control Group			
Subscale	**Pre-Test Median**	**Post-Test Median**	**Z**	**p**	**Pre-test Median**	**Post-test Median**	**Z**	**p**
Overall	66.00	73.00	-2.12	0.034	79.5	68.5	-1.295	0.195
Nursing	38.00	39.00	-0.398	0.691	41.5	37.5	-1.258	0.208
Relationships	62.5	68.5	-1.531	0.126	55.0	55.5	-0.943	0.345
Environment	80.00	84.00	-1.680	0.093	80.0	85.0	-0.535	0.593

As for the Family Involvement Questionnaire, the Family Perceptions of Care tool also failed to capture statistically significant changes. Changes were detected however after the case management intervention and are listed.

- There was an increase in satisfaction for the overall perceptions of care at the intervention site, but a decrease at the control site.
- Satisfaction with nursing care at the intervention site increased with a decrease at the control site.
- Reported satisfaction with relationships increased at the control site but showed no change at the control site.

- Both the intervention and control groups reported greater satisfaction with the nursing home environment.

Demographic information obtained from both sites was compared and showed no statistical difference between the groups. The residents ages, length of stay and cognitive status also established no differences. Comparison between the groups is depicted in table 2.

Table 2: Resident and family members basic characteristics

	Intervention Site (N=22)		Control Site (N= 20)	
Residents Characteristics				
Age	M=79 SD=10	Range 50-95	M=84 SD =10	Range 67-99
Gender	M=10 (45.5%)	F=12 (54.5%)	M=5 (25%)	F=15 (75%)
RMMS	M=14.3	Range 0-30	M=12.0	Range 0-28
RCS				
• Level 1	14 (64%)			
• Level 2	7 (32%)		8 (40%)	
• Level 3			7 (35%)	
• Level 4	1 (4%)		5 (25%)	
Length of Stay (days)	Med= 619	Range 24-2735	Med=1002	Range 70-7182
Family Member Characteristics				
Age	M=58 SD=15	Range 28-82	M=64 SD=14	Range 34-86
Gender	M=7 (32%)	F=15 (75%)	M = 5 (25%)	F=15 (75%)
Australian Born	19 (90%)		20 (100%)	
Education				
• Some Secondary	4(14%)		5 (25%)	
• High School	11(52%)		8 (40%)	
• Post-High	7(34%)		7 (35%)	
Employment				
• Retired/Not employed	9 (41%)		9 (45%)	
• Employed	13 (59%)		11(55%)	
Main Carer before admission	12 (54%)		16 (80%)	
% Lived within 10 minutes of facility	13 (59%)		9 (47%)	

DISCUSSION

While the results of the study were not statistically significant, they do suggest that the implementation of case management in aged care settings improves relations between staff and families and perceptions of care delivered.

The small sample size and resultant lack of power may have impacted on the significance of the results. Previous studies also demonstrate difficulty in capturing changed views due to lack of an instrument sensitive enough to measure shifts in attitude and perception (Robinson et al 2007).

Family participation increased in many domains at the intervention site, where case management was implemented with the exception of reported reduction at the intervention site of overseeing their relatives care, which increased at the control site. A systematic review of the literature undertaken in 2006 (Haesler et al 2006) suggests that family withdrawal from direct overseeing of care is an indicator of confidence in the caregivers, so this decrease is favourable.

It is recommended that further research of case management in aged care settings should evaluate staff satisfaction and the impact on resident outcomes. Although this study demonstrated favourable increases in both, they were not formally measured as part of the project.

A criticism of case management in aged care settings has been the ability to fund such a model. Changes to the level of funding and staffing may be achieved by the 'Because We Care' campaign providing the needed impetus and ability to initiate change.

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Rethinking student night duty placements - a replication study

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NOTE

In Victoria, Australia enrolled nurses are also often referred to as division 2 nurses and you will see this term used in quotes throughout this article.

KEY WORDS

Enrolled nurse, clinical placement, graduate preparation, night shift, nursing student, work readiness.

ABSTRACT

Objective
This paper reports findings as a replicated qualitative study (McKenna and French 2010) that investigated experiences and value of night duty; with the variance that the students' were undergraduate enrolled nurse students as opposed to undergraduate registered nurse student nurses'.

Design
Enrolled nurse students' from one private Registered Training Organisation (RTO) were invited to participate in a two week night shift placement as their preparation for practice in an acute care facility. A qualitative approach involving focus groups with students and ward nurses, prior to, and following that clinical placements was used. In addition, individual interviews were conducted with other key stakeholders from the RTO and Health Care Service.

Setting
The study was conducted in one regional public hospital in Victoria, Australia. A clinical teacher, who was also the clinical co-ordinator, was employed by the RTO to provide student supervision during the placement.

Subjects
Thirty eight enrolled nursing students, six permanent night staff from the hospital and four key personnel representing the education provider and hospital perspectives consented to participate.

Main Outcome measures
All transcripts were thematically analysed together with the context of placement value and experiences.

Results
Four themes emerged from pre-placement interviews: *coping with travelling, nature of night shift, preparing to be a graduate, and change and adjustment.* Post placement interviews revealed four themes of; *time to learn and time to teach, adjusting, continuity and preparing to be a graduate and night duty as a recommended clinical placement for the enrolled nurse student.*

Conclusions
This replication study has added evidentiary support that night duty is a highly appropriate model of professional clinical practice for the enrolled nurse. Within a collaborative model it has enabled the student enrolled nurse to consolidate theory to practice, exposure to reality of nursing as a twenty four hour continuity of care and met professional and education competency standards. It also demonstrated that with visionary partnerships new models of clinical experience for the enrolled nurse can be developed that meet today's challenges to provide flexible models of clinical experience.

INTRODUCTION

The number of students' requiring clinical placement has placed demands on tertiary hospitals and education providers to look at initiatives to meet student competency and curricula requirements. Student nursing clinical placements predominately occur over a weekday on a morning and afternoon shift which is not congruent with the reality of nursing practice as a continuous twenty four hour care.

The provision of care on night duty is different to that provided during the day which is supported by the study undertaken by McKenna and French (2010) concluding that night duty placements offered a range of possibilities and the need for further research. This qualitative replication study is a response to this research gap with the findings concurring with the original research. The current study was conducted in a similar clinical setting with the variance of participants as enrolled nurse students completing their final placement before entering the workforce, not a graduate year.

BACKGROUND

The demand for clinical placements in the acute care setting on weekdays had surpassed supply prompting the need to take a more flexible and innovative approach to securing a clinical placement for our enrolled nurse students The researchers were aware that a limited night duty clinical placement has become part of some education providers' entry to practice for undergraduate bachelor nursing students, but in the absence of published literature or research its benefits or otherwise is unknown. The researchers' education and health facility had not placed enrolled nurse students on night duty. In an extensive literature review there was a void of published literature related to student enrolled nurses on a night duty clinical placement.

Anecdotal views expressed on the concept of a night duty clinical placement for the enrolled nurse, especially for acute care, which was considered inappropriate included; insufficient exposure to clinical skills and patient care, lack of interest by students', perceived lack of interest by night duty staff and a lack of adequate supervision. These anecdotal remarks could not be supported or reputed due to lack of available literature. The literature supported the view that night duty clinical supervision was under researched and that the intrinsic value is not attached to night work which tends to make night nursing invisible and less valuable (Nilsson et al 2008; Campbell 1998).The literature surrounding clinical supervision, although vast and important is not specifically related to night duty and enrolled nursing students.

A plethora of evidence supports that supervised clinical practice plays an important role in the professional and personal development of students providing the opportunity to translate theory to practice and the development of competence and confidence (Levett-Jones and Bourgeois 2011; Croxon and Maginnis 2009; Walker 2009; Cederbaum and Klusaritz 2009; Conway 2009; Haggman-Laitila et al 2007). The provision of a supportive environment is essential for student learning and development of skills (Cross et al 2010; Ness et al2010; Waldock 2010).

The lack of exposure by nursing students to night duty may influence job readiness or preparedness for night duty as an employment requirement or option (McKenna and French 2010). Difficulties and stressors associated with shift work, after entry to the workforce has been well described in the literature (Yat-Ming Cheung and Kit-Fong Au 2011, Peters et al 2009, West et al 2007). To date, little research has explored the impact of rotating shifts for student nurses.

A Swedish study (Nilsson et al 2008) looking at night staff's working experiences which included enrolled nurses although not students, concluded that health care technical and medical development saw night work

increasingly beginning to look like day work. In exploring the experiences and value of night duty for nursing students, McKenna and French (2010) and Campbell (2008) found that night duty provided an appreciation of the round-the-clock nature of nursing and unique opportunities for learning.

The challenge for the education provider was to find an innovative health care partner willing to pilot a night duty clinical model for enrolled nursing students and one that would embrace a collaborative partnership based on joint effort and ownership. We found that partner in the co-researcher, as the education director of a regional tertiary hospital who not only embraced the concept of a night duty clinical model but was keen to undertake it within a qualitative research framework. Our organisational partnership was based on mutual understanding, respect for each other's expertise and a joint commitment to open communication between all stakeholders and a joint focus on beneficial outcomes for all parties.

The pilot professional placement experience teaching and learning model was informed by the literature and ANMC (2002) national competency standards for the enrolled nurse. This model was based on the clinical facilitator model of supervision where the facilitator provided by the education facility was supernumerary and responsible for teaching, supervising and assessing students in a 1:8 ratio. Students were allocated to a practice partner (Levitt-Jones and Bourgeois 2011) who was an experienced and qualified member of the clinical team. Thus the practice partner collaboratively contributed to student learning in a one-on-one basis providing guidance and support and assisting the student to become increasingly independent, competent, autonomous and responsible member of the clinical team.

As the final entry to practice professional placement experience the teaching and learning model embraced problem based learning, clinical reasoning, decision making within a contemporary framework of reality practice. Students also maintained a professional reflective journal to enhance their personal and professional development. Debriefing was undertaken by the clinical facilitator on a one-on-one basis in close liaison with practice partners. A planned student led experiential teaching and learning session, away from the clinical setting was conducted for one hour on each shift. Experiential learning provides students' with opportunities to enhance their *learning outcomes*. It is an individualised process "where a learner tries out theory in practice and, as a result, forms new knowledge" (Smith et al 2008, p.3). Professional experience placement also mandates a student must be supported and supervised while they are attending placement.

METHODS

Thirty eight Certificate IV in Nursing (enrolled nurse) students', six permanent night staff from the health facility and four key personnel representing the education and health facility perspectives consented to participate. The gender mix was two males and thirty four females with an age range from 18-57 years, with the mean average for students' as 32 years and ward staff as 43 years.

Approval to conduct the research was obtained through the Research and Ethics Committees of the health care facility and education provider. The research was conducted over a seven week period to accommodate all the students' clinical requirements. Permission was granted from the original researchers to replicate their qualitative research methods involving focus groups with students prior to, and following the clinical placements were used. The focus groups were small with no more than three students which ensured that all students were provided with opportunity for equal responses. Permission for tape recordings were granted by all participants of the research, providing an accurate method for capturing responses and later review of the responses with less potential for interviewer bias. Analysis of the data, from the verbatim transcribed audiotapes, was sorted, categorised into themes using qualitative data approaches.

FINDINGS

The research identified four themes from both the pre-placement interviews and post placement interviews relating to experiences and placement value. The current research differed from the original research where three themes pre and post placement were identified.

Pre-Placement Interviews

Themes emerging from pre-placement interviews were: Coping with Travelling, Nature of Night Shift, and Preparing to be a Graduate and Change and Adjustment.

Coping with Travelling

The clinical placement facility for most students required travelling for one hour to and from the facility. For the majority of students they had only experienced clinical placement in their local area which was close to their home and family. Most students had arranged accommodation near the health facility while some students had decided to travel daily to meet family commitments. The students who did travel arranged car-pooling as they perceived that they would be tired after working night shift and considered it a safety factor as well as an economical consideration.

> *I have never worked night shift and I am not really a night person so I am concerned that if I travelled alone I might fall asleep at the wheel, at least with a companion we can chat, stop for coffee and share the driving. (Student)*

> *I really would prefer to be staying with the other students as it would be a nice break, but with a young family would prefer to be at home. (Student)*

> *I really can't decide whether to travel or stay. I am not concerned about the travel as I am travelling with a fellow student, so I think I will wait and see what I do when I have started to work. (Student)*

> *I am use to travelling long distances so it's not an issue for me, although in saying that I have not worked night shift so I will have to wait and see how I go, at least I have some options. (Student)*

Nature of Night Shift

Students and staff perceived that night shift would be different to that experienced during the day. Students were uncertain about the nature of nursing work at night and perceived it would be quieter than during the day.

> *I believe that it will provide more opportunity to learn as it won't be as busy as during the day. (Student)*

> *As it is night shift I expect that the patients will be sleeping and apart from general nursing care, think it will be very quiet. (Student)*

> *Night shift will be quieter because there are fewer disruptions with visitors, doctors and other health personnel. (Student)*

> *Some staff perceived that night staff is not as busy, as they are during the day, but I have worked all shifts and night shift can be just as busy. In saying that there are times when it is quieter but I think this is a perception due to less activity at night by the presence of medical and allied staff who worked during the day. (Staff)*

Most students perceived they would be busier on night shift.

> *As this is my first exposure to acute care I believe it will be a lot busier as patients will be sicker and have lots of medical interventions. (Student)*

I imagine it will be a lot busier because they are surgical patients and will have a lot of care needed post operatively. (Student)

I think it will be a lot busier as you would be constantly monitoring patients as the unexpected may happen in the early hours of the night. (Student)

Night shift will be busy as there are less people on nights to do they work. (Student)

Nursing staff identified other aspects that were different. Having students on night duty as a group was uncommon, and enrolled nursing students on night shift had not occurred so there were also some reservations.

I am looking forward to having students, particularly, so that they can obtain a better understanding of the 24 hour nature of nursing. (Staff)

Students keep you on your toes so looking forward to have them included in night shift. (Staff)

I have some hesitancy if this rotation is appropriate and sufficient to gain acute care skills and knowledge. (Staff)

Night duty exposes students to many learning opportunities and tapping in to a wealth of experience that they don't normally tap in to. (Senior staff)

First heard of students said oh no not students- the effort when you have a student- you get into a routine and don't like it upsetting. (Staff)

Nursing staff recognised that there was less medical support around on night duty and the need for staff to be experienced nurses.

It takes an experience nurse with developed skills in patient assessment and a high level of expertise to manage the unexpected that occurs at night. You need to be able to think on your feet so you need good problem and decision making skills as there is only one doctor on at night. (Staff)

You need to be constantly vigilant on night duty and not get complacent just because you think the patient should be sleeping, this requires an experienced nurse. (Staff)

The pace and unexpected nature of night duty requires a nurse that is experienced, highly skilled and with has good leadership skills. (Senior staff)

Teamwork was identified by the nursing staff as an essential element of working on night shift.

Although we have patient allocation you rely on other staff members to assist with patient care, but also for assistance with problem solving and decision making. (Staff)

Team work is an essential component on night duty and you rely on the assistance by other staff when the unexpected occurs. (Staff)

We work as a team at the beginning at the end of the shift to undertake patient observations which enables us to get all the work done. (Staff)

The importance of documentation was emphasised by staff as an essential component of working at night.

Collation of fluid charting provides an important overview of patient's fluid status and a tool for assessment of patient's response to treatment. (Staff)

The consolidation of documentation provides a comprehensive history of the patients care and management for 24 hour care. (Staff)

Preparing to be a Graduate

A night duty placement was seen by staff and students as an important component of an enrolled nurse program. Night duty provided opportunities in understanding the graduate role and the realities of nursing practice. Students felt the placement would better prepare them for the workforce, and appreciated the benefits in undertaking the placement with support in a student role.

> *This is an important placement as it provides me with exposure to the 24 hour nature of nursing .I have the opportunity to develop my skills and knowledge while I am supported by my facilitator and ward staff. (Student)*

> *I will be looking for my facilitator and clinical staff to guide me in my nursing practice because when I graduate I will be expected to be able to function on my own. (Staff)*

Change and Adjustment

The final theme emerging in the pre-placement interviews was around adjustments that would be necessary. This not only related to students, but also to staff who were having enrolled nurse student's for the first time. Lack of familiarity with the enrolled nurse program and the tasks they could undertake was identified.

> *I have only had experience with Bachelor program students and have no idea of the division 2 training program, so I will need to have an outline of their program and objectives. (Staff)*

> *We seldom have students on night duty, so it will take some adjustment to remember not to just go off and start working without taking the student. (Staff)*

> *I have some reservations about the role and function of the division 2 nurse particularly in acute care, so I will need to have more information about what skills they can perform. (Staff)*

> *I have to make a renewed effort to be a little more patient with the students as I know I can get grumpy when students forget room numbers go to the wrong end, poking around in the dark and learning new machinery and equipment. (Staff)*

Given students were undertaking night duty for the first time, students raised a number of issues relating to adjustment. These involved physical and social alterations that would be necessary. The ability to cope with these adjustments and their effect on students' ability to function at optimal level was also expressed by staff and students.

> *Their ability to be proactive in seeking out learning opportunities may be a consideration if they don't get enough sleep. (Senior staff)*

> *I am not a night person so not sure how I will handle sleeping during the day so I am concerned that I will not be as alert on night duty as I should be. (Student)*

> *I am concerned about staying alert and awake all night particularly around 3 or 4 am. (Student)*

> *I am concerned about being away from the family at night as I have never done that before. (Student)*

> *Trying to juggle a change in sleep patterns and family commitments will require a lot of adjusting. I am not sure that I will get enough sleep to function effectively. (Student)*

> *I have experienced early morning lethargy and concerned that this will be an issue for the students. It is important that they start alert as you find this is when METS are called and you need to be on your toes. (Staff)*

Students were undertaking acute care nursing in a new environment for the first time. They expressed concerns around adjusting to acute care nursing and a large health care facility.

> *I have never worked in an acute facility and I know from the previous placements we have had it will be very different and confronting and I'm not sure what to prepare myself for, but I am very excited and happy to gain as much experience as I can. (Student)*

> *I am nervous entering a completely new environment and how the staff might treat us and what their expectations are of us. (Student)*

> *I think I will be faced will many challenges, such as fatigue, unfamiliar environment, new staff and patients who will be really sick requiring a lot of care and equipment. (Student)*

Post placement Interviews

Four themes emerged from the rich data, these being: Time to learn, Time to Teach; Adjusting; Continuity of care; Preparing to be a Graduate; and Compulsory night duty clinical placement.

Time to learn, Time to teach

The teaching and learning opportunities on night duty exceeded the students' expectations. It was highlighted that there was time to learn to consolidate theory and apply it to practice as well as the opportunity to learn from experienced staff. Staff had time to teach students on an individual basis that is not normally available during the daytime.

> *It has been a great learning opportunity I got to put everything I have learnt in class into practice. (Student)*

> *I found there was time to read patients histories, clarify aspects with ward staff and research areas of my knowledge deficit. (Student)*

> *I have come a long way; I remember the first handover I thought they were speaking in Chinese. I now understand and use the abbreviations. It makes me feel good that I have learnt the lingo. (Student)*

> *Nights provided a broad range of experiences and the time to research anything I wasn't sure of. (Student)*

> *The knowledge of staff has been unbelievable. I have learnt so many things that you can't get from a textbook which was worth gold. (Student)*

> *I have been exposed to a diverse range of experiences and gained a lot of knowledge. (Student)*

> *I have enjoyed having the students they have been enthusiastic learners which motivated me to teach them. (Staff)*

> *I have learnt that although I don't love working nights it is a time when there is still a lot going on in the ward to keep you busy, to practice your skills and to build therapeutic relationships with your patients. (Student)*

There were many opportunities for new learning experiences that refined previously learned skills and knowledge. Students and staff identified physical assessment, team work and documentation skills as particularly necessary for night duty.

> *I have been fortunate to experience a whole range of complex skills, such as, tracheostomy suctioning, intercostal catheter, wound care, ECG, taking blood, blood transfusion and so much more. (Student)*

> *I had the opportunity to take a patient to theatre, admit several new patients and undertake a full assessment which I did not expect, as well as undertaking many complex skills. (Student)*

> *Teamwork is essential on night duty because there is a limited number of staff available, so everyone needs to work together to ensure patient care. This is particularly important when the unexpected occurs. (Staff)*

Adjusting

Adjustment to night duty affecting physical and social factors was identified as a particular concern for students in the pre-placement interview. Students placed little emphasis on these adjustments in the post-placement interview.

> *I surprised myself I was not as tired as I thought I would be and time went very quickly. (Student)*
>
> *I battled with fatigue for the first couple of days but managed to overcome that as there was so much to learn and do. (Student)*
>
> *The spacing out of breaks and time for debriefing was a great benefit in keeping me awake and alert. (Student)*
>
> *I would actually work night duty now whereas before this placement would never have thought of doing night duty. (Student)*
>
> *For the two weeks I managed to keep the family happy, have just enough sleep which pleasantly surprised me. (Student)*
>
> *I really am not a night person I struggled with the change to my body clock. (Student)*
>
> *Good to see allocation of debriefing time, as they would have on day duty, and allocated breaks to reduce student fatigue. (Senior staff)*

Continuity of care

A positive unexpected aspect was students were exposed to more continuity of care and the continuous nature of nursing work than had been experienced. The students had the opportunity to follow through surgical patients and manage their care during the acute post-operative phase. Students were able to follow through patients from acute admission and medical episode until stabilisation.

> *The daytime handover was very comprehensive and when I presented the morning handover I was able to provide the continuation of care at night for the patients I was caring for, made me feel very good. (Student)*
>
> *I have gained an understanding of the role of the nurse on nights and the continuous nature of caring for a patient in a twenty-four hour period. (Student)*
>
> *The patient I had admitted earlier suddenly complained of chest pain and a MET was called which was frightening and exciting. The MET team explained what they were doing and then the patient was stabilised and I was allowed to continue to care for her. (Student)*

Preparing to be a graduate

The placement was seen as a significant factor in contributing to students' preparation to practice as registered enrolled nurses. Consolidation of theoretical knowledge to practice within a critical framework was expressed.

> *This placement has enhanced my ability to be able to link knowledge and practice, and hence give my patients the best care possible. (Student)*

Students' personal and professional development during the placement was expressed as increasing in confidence and time management which was identified as a necessary aspect of working as a registered enrolled nurse.

> *I have gained many skills on night duty and feel prepared and confident to practice as a valued nurse in the health field. (Student)*

Can now confidently turn up to a paid job the next week my practice and time management skills have greatly improved. (Student)

My time management improved as did my critical thinking. (Student)

It was very rewarding to see the growth of the students in their confidence, nursing practice and time management. (Ward staff)

I have learnt a great many things, but most of all I have learnt to have confidence in myself and my actions. (Student)

Night Duty included as a clinical placement

An unexpected finding of the post-placement interview was an overwhelming number of students believed that night duty should be included as a clinical placement within their Program. The level of support shown by ward staff and the opportunities for learning and teaching and the reality of nursing practice gave rise to their recommendation.

Its good experience you need to work rotating shifts as it is an expectation of employment. (Student)

I would recommend that all undergraduate students undertake a night duty placement because things are very different at night. (Student)

It is a rewarding experience and would highly recommend it to other students. (Student)

DISCUSSION

This replication study explored experiences and value of night duty placements for enrolled nurse students', an area currently poorly researched. The additional fourth pre-interview theme that emerged in this study was for participants coping with travelling. The findings cited concern around the additional time in travelling and the participants concern with how they would cope with night duty and the preconceived concerns around staying alert and awake. However, emphasis was not placed on this in the post-placement interview; the learning experiences and structure of the clinical model, maintained their stimulation and activity. Ideally a clinical placement within the students' usual environment would minimise the students anxiety related to coping to travel pre-placement and needs to be considered in the ability to access clinical venues within a closer geographical area.

This study supports McKenna and French (2010) and Campbell (2008) where placements were found to offer different learning opportunities and a quieter environment enabling connections between theory and practice, consolidate clinical skills in an environment where there was less competition for learning opportunities. There was however, no distinction made in this study on different learning opportunities than what would have been encountered during the day. The particular experiences identified by students in the original study were experiences that the current study students had during their night duty placement, which further supports Nilsson et al (2008) that health care technical and medical development saw night work increasingly beginning to look like day work.

The lack of knowledge on the role and responsibilities of the student enrolled nurses expressed by several staff members was due to lack of access to pre-placement information supplied by the RTO. Only one staff member expressed a lack of understanding of the enrolled nurse in health care. Ensuring staff have access to available information pre-placement is a consideration for any future night duty placements.

The present study supports McKenna and French (2010), where students felt prepared to practice as a registered nurse in relation to applying knowledge to practice, increase in confidence, improved time management skills

and improved nursing practice skills. Students expressed that the friendly environment, experienced staff and their willingness and time to assist their learning was a major factor in their preparedness to practice. A limitation of this study and an area for further study is how the students' perceived preparedness for practice translates into the practice setting as members of the work force.

The importance of team nursing at night was not a finding of the McKenna and French (2010) study; whereas the present study findings highlighted working as a team essential for night duty, which supports the study by Nilsson et al (2008).

This study findings support McKenna and French (2010) where the placement allowed participants to appreciate the round-the-clock nature of nursing work prior to entry into the workforce. A further post-interview theme from students that emerged from this study was the recommended that all students undertake a night duty rotation as part of their education program which supports the study by Campbell et al (2008). This recommendation was based on the opportunities for learning, understanding the continuous nature of nursing and they also expressed that it would increase their opportunities for employment. This exposure to night duty by students as part of their education program may provide a greater understanding of the reality of nursing practice as a twenty-four-hour continuous practice and demystify and add value to night nursing. The exposure to night duty as students may assist in work readiness of nurses, retention and recruitment of nurses. The study by Eley et al (2011) found that a 'dislike of shift work' was a factor influencing respondents' decision to leave nursing.

The findings of this study are congruent with the findings of McKenna and French (2010) and although similarly positive are constrained by the limited number of health care clinical placements settings and small participant groups. In the absence of any literature on clinical placements for the Enrolled nurse this study provides an insight into the experiences of a night duty clinical placement prior to registration for the study participants. The findings of this study cannot be generalised beyond the groups who participated. Further studies are recommended that incorporate students from other educational and health care settings either as a final placement before registration or earlier in their course. Finally, follow –up studies need to evaluate the impact of a night duty placement and their outcome in preparing the enrolled nurse student for the practice environment as a nurse.

CONCLUSION

This replication study has added support that night duty offers diverse learning opportunities that are essentially untapped, particularly for the enrolled nurse students. The placement allows students to consolidate skills, relate theory to practice, and exposure to the reality of nursing as a twenty four hour continuity of care. The participants in this study met professional and education competency requirements.

It has also demonstrated that with visionary partnerships new models of clinical experience can be developed with a research framework that meet the challenges of the need to provide flexible models of clinical placement.

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Handover: Faster and safer?

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KEY WORDS

bedside handover, Lewin, 3-stage model, handoff

ABSTRACT

Objective
This study aimed to introduce bedside handover to three rural South Australian hospitals.

Design
A mixed-method, pre-test post-test evaluative approach involving quantitative (quasi-experimental) and qualitative (ethnographic) elements was used.

Setting
This study was set in three acute hospital wards.

Subjects
The sample comprised forty-eight self-selected enrolled/registered nursing staff; forty-seven females and one male.

Main outcome measure(s)
A 7-point Likert scale (19 items) and ethnographic interview questions covered themes relating to nurses satisfaction of pre and post-handover processes, frequency of incidents and estimations of time taken to conduct handover processes. Pre and post-handover processes were digitally timed. Documentation review of pre and post incident frequencies and journaling were also undertaken.

Results
With regard to handover duration, the average total time taken to conduct handover had decreased between 13% and 70% depending on the site. From a practical aspect, this can be regarded as significant. With regard to incident comparison, there is a clear trend from pre to post; the total number of incidents dropping from eighteen to seven.

Conclusions
The results of this study indicate that bedside handover approach is significantly less time consuming than the closed door approach previously adopted. The findings indicate a trend in the reduction of frequency of incidents under the bedside handover process. Literature suggests that incident reduction is directly correlated with increased information accuracy, however, this was not found to be the case in this study. Further research is warranted into factors, other than information accuracy, that may increase safety in clinical settings.

INTRODUCTION

Bedside handover is considered by hospitals and reported in literature to be a superior method of handover, leading to increased safety and providing economic benefits to the organisations involved (Payne et al 2000; Parker 1996). Whilst the importance of various handover methods has been documented in the literature in relation to their value in communication, clinical, monetary and psychological terms (O'Connell and Penney 2001), little has been written about its implementation. This project sought to study empirically the process and outcomes of the introduction of nurse-to-nurse bedside handover in three rural South Australian (SA) hospitals and was underpinned by Lewin's (1947a; 1947b) 3-Stage Model of Change.

In this paper literature and study results pertaining to the aspects of safety and duration of handover will be discussed.

Literature review

Rising patient numbers and complexity of care are increasing the amount of time needed to perform the handover process (Payne et al 2000). As noted by Buchan et al (2000), in order to provide cost-effective nursing care, a delicate balance is required between staffing levels and skill mix to meet patients' needs. In an industry that is financially stressed, procedures that provide the greatest benefits at the lowest cost must be implemented.

Upon review of literature pertaining to handover, the researchers were unable to locate any empirical studies with the aim of determining the most cost-effective handover method. That being said, several authors (Trossman 2009; Lally 1999) make the unsubstantiated claim that bedside handover is a more economic system than other handover methods available. In conjunction with relevant industrial awards and empirical evidence gathered in this study, an estimated cost can be established. With the health industry facing economic hardship, the sizeable costing of handover serves as motivation to uncover more cost-effective practices that may also potentially result in better operation of handover (Strople and Ottani 2006).

Not only is the financial expenditure of handover worth consideration, but also the outlay of time completing the process, which removes nursing staff from the individuals at the centre of the care. As suggested by Caruso (2007), this separation between nurses and patient can lead to decreased patient safety.

Bedside handover is the single handoff method reported that both unites nursing staff with patients and increases patient safety (Trossman 2009; Caruso 2007). Again, no empirical evidence demonstrating a clear link between handover method used and frequency of errors/incidents was able to be found. The findings of this study will pave the way in establishing a concrete connection between handoff method used and incident frequency.

METHODOLOGY

This study was conducted within three small rural SA hospitals. While these sites share similarities, points of difference such as patient capacity, qualifications of ward staff and types of patients were present. In order to accurately measure the change process, the introduction of bedside handover was duplicated in each site. The handover approach adopted prior to the change intervention was that of face-to-face verbal closed-door handover. The change implementation resulted in the adoption of the nurse-to-nurse bedside handover method.

The sample comprised forty-eight (n=48) self-selected nursing staff (at various levels). There were no exclusion criteria for the study; however, participants were required to be working on the wards/units involved in the study prior to, during and post implementation.

The data collection within this mixed-method study was underpinned by the paradigms of interpretivism and post-positivism, with triangulation of data undertaken to reduce the level of subjectivity. Data collection was performed in three stages with qualitative and quantitative elements performed simultaneously. These stages were aligned to the three stages of Lewin's (1947a; 1947b) 3-Stage Model of Change (unfreezing, changing and refreezing).

Quantitative elements of data collection included comparison of pre and post incident frequencies and handover timings. The researchers attended handovers to gather data relating to the type of information discussed, the time it took to undertake the process and to become familiar with terminology used by nurses. During stages one and three, the researchers attended and timed a total of fourteen morning-to-afternoon handovers across the three sites. Timing the handovers allowed a point of comparison on a pre and post basis.

The qualitative aspects of data collection comprised ethnographic interviewing, journaling and observations.

FINDINGS

The findings will be presented under the headings of demographics, quantitative findings and qualitative findings. While all calculations were performed without rounding, figures within tables have been rounded to two decimal places for ease of review.

Demographics

The survey data were collected from a fairly even spread of respondents across the three sites (Table 1). A total of 38.1% (n=16) of respondents were from Site 1, 33.3% (n=14) from Site 2 and the remaining 28.6% (n=12) from Site 3.

Regarding the age of the sample, 59.5% (n=25) of respondents were aged over 40, 33.3% (n=14) were aged 26-39 and 2.4% (n=1) of respondents were in the 18-25 category. Two respondents declined to answer this question. Table 1 displays the results of the age by site breakdown.

Table 1: Site* age contingency table.

			Age				Total
			18-25	26-39	40-50	51+	
Site	Site 1	Count	0	6	8	2	16
		Expected count	.4	5.6	6.0	4.0	16.0
		Std. Residual	-.6	.2	.8	-1.0	
	Site 2	Count	0	5	6	2	13
		Expected count	.3	4.6	4.9	3.3	13.0
		Std. Residual	-.6	.2			
	Site 3	Count	1	3	1	6	11
		Expected count	.3	3.9	4.1	2.8	11.0
		Std. Residual	1.4	-.4	-1.5	2.0	
Total		Count	1	14	15	10	40
		Expected count	1.0	14.0	15.0	10.0	40.0

Actual and expected frequencies are shown. Exact statistical procedures are used. The p-score falls just outside significance (p=0.052). However, the standardised residuals in table 1 suggest there are more nurses aged 51+ at site 3 than would be expected if there was independence. The residual is of magnitude 2, which is significant at the 5% level.

The gender spread of participants was one-sided. The demographic data consisted of 92.9% (n=39) of respondents being female and 2.4% (n=1) being male. With regard to the type of staff that participated in the

study, 88.1% (n=37) of respondents were registered nurses and 7.1% (n=3) were enrolled nurses. A further 4.8% (n=2) of respondents declined to answer questions pertaining to gender and type of staff.

Quantitative Results

The results pertaining to duration of handover incorporated staff perceptions of the time taken to perform handover and the physical timing of the handover itself. Presented below are the findings of the question 'I believe the current handover process is difficult and time consuming' (table 2 and figure 1).

Table 2: I believe the current handover process is difficult and time consuming.

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	73	386.832	.000
Time	1	73	4.615	.035
Site	2	73	2.405	.097
Time* Site	2	73	2.912	.061

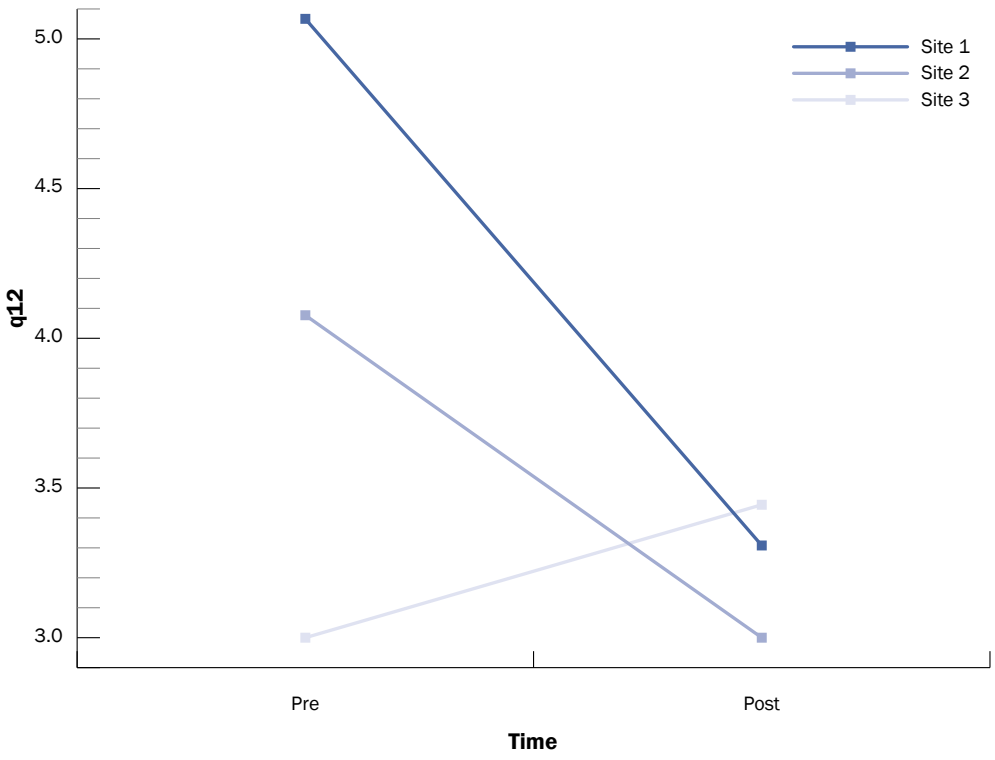
[a] Dependent Variable: q12

3. Site* Time[a]

Site	Time	Mean	Std. Error	df	95% confidence interval	
					Lower bound	Upper bound
Site 1	Pre	5.067	.404	73	4.261	5.872
	Post	3.308	.434	73	2.442	4.173
Site 2	Pre	4.077	.434	73	3.212	4.942
	Post	3.000	.452	73	2.099	3.901
Site 3	Pre	3.000	.472	73	2.059	3.941
	Post	3.444	.522	73	2.405	4.484

[a] Dependent Variable: q12

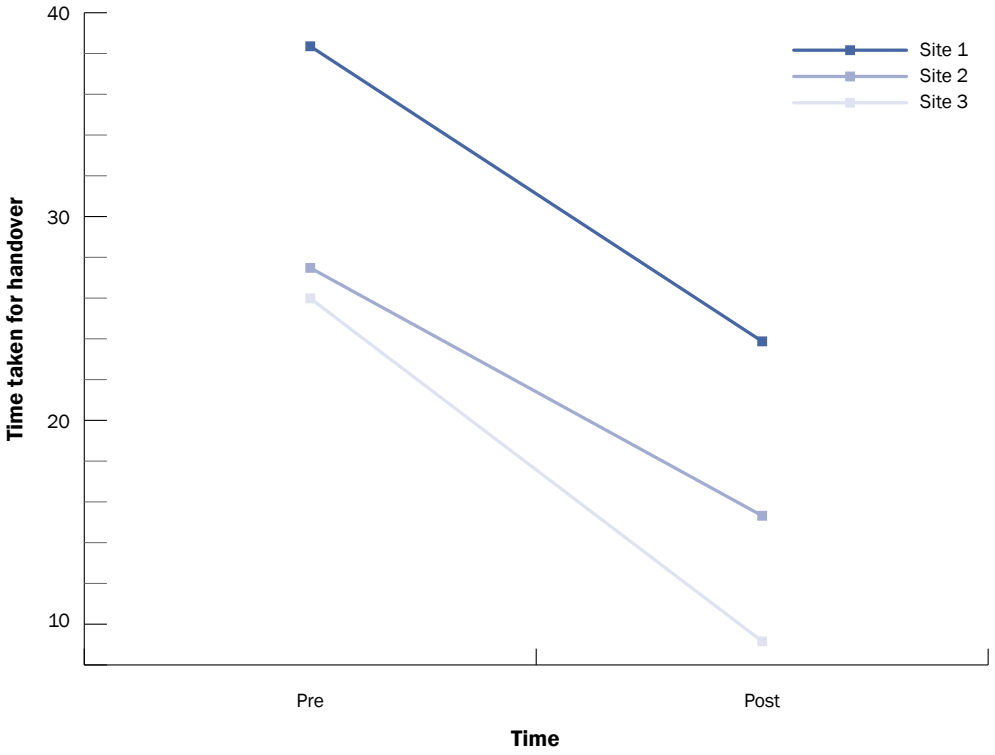
Figure 1: I believe the current handover process is difficult and time consuming.



In looking at table 2 and figure 1, Sites 1 and 2 have experienced significant decreases, while Site 3 shows no evidence of change. It is clear that staff believe the level of difficulty and time taken to undertake handover have decreased as a result of the change implementation. There is a significant time effect; however, the post-hoc Bonferroni test shows that this is due to Site 1 (p=0.038).

Nurses were also asked to estimate the time taken to perform handover on a pre and post basis. These results are presented in figure 2.

Figure 2: Nurses' estimations of the time taken to perform pre and post-handover.



From looking at figure 2, it is evident that there is a significant overall site difference in the estimation of handover time from pre to post. While Site 1 started and finished higher on the plot than the other sites, the rate of change between sites is comparable and holds no significance. These figures indicate that nurses believed the time taken to perform handover had decreased as a result of the change implementation. This concurs with the physical timings of the handover process that were undertaken. Table 3 outlines the pre-implementation averages obtained from timing the handover process.

Table 3: Figures obtained from timing the handover pre-implementation.

Site	Number of Patients	Number of staff	Total time to conduct handover (hours)	Average handover p/patient (hours)	Average time to handover p/patient, p/staff member (minutes)
Site 1 (average)	13	6	5.54	0.43	4.25
Site 2 (average)	7	4	2.25	0.32	4.80
Site 3 (average)	3	5	1.45	0.48	5.80

The researchers were able to calculate the all sites' average time taken to handover per patient pre-implementation. This total time is the time taken to handover a single patient, multiplied by the number of staff present during the handover. The average (mean) total time taken to handover per patient across all sites pre-implementation was 0.44 hours. Table 4 outlines the post-implementation averages obtained from timing the handover process.

Table 4: Figures obtained from timing the handover post-implementation.

Site	Number of Patients	Number of staff	Total time to conduct handover (hours)	Average handover p/patient (hours)	Average time to handover p/patient, p/staff member (minutes)
Site 1 (average)	12	6	4.47	0.37	3.72
Site 2 (average)	8	4	0.78	0.10	1.45
Site 3 (average)	3	4	0.39	0.13	1.93

The average (mean) total time taken to handover per patient across all sites post implementation was 0.22 hours. Table 5 shows the mixed modelling analysis of the pre and post-handover times. The descriptive statistics for this variable are broken down by site and time.

Table 5: Mixed modelling analysis of pre and post-handover times.

Site	Time	Mean	N	Std. Deviation
Site 1	Pre	5.5367	3	1.74489
	Post	4.4800	3	.62378
	Total	5.0083	6	1.30708
Site 2	Pre	2.2550	2	.16263
	Post	.7800	2	.15556
	Total	1.5175	4	.86145
Site 3	Pre	1.4500	2	1.79605
	Post	.3850	2	.47376
	Total	.9175	4	1.23619
Total	Pre	3.4314	7	2.35435
	Post	2.2529	7	2.13009
	Total	2.8421	14	2.24196

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	2.022	3.787	.190
Time	1	10.022	4.639	.057

[a] Dependent Variable: handover time

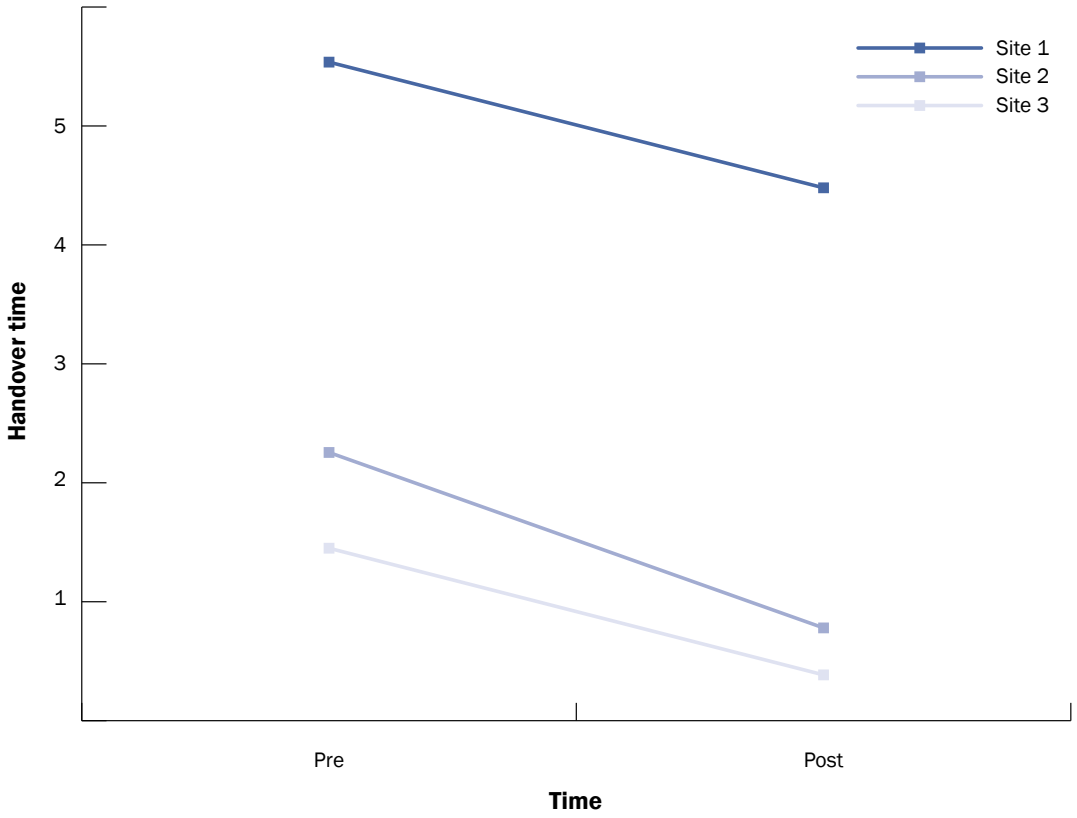
Estimates of Fixed Effects[b]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower bound	Upper bound
Intercept	1.906818	1.311505	2.209	1.454	.272	-3.254112	7.067748
[time=.00]	1.178571	.547190	10.022	2.154	.057	-.040274	2.397417
[time=1.00]	0[a]	0	-	-	-	-	-

[a] This parameter is set to zero because it is redundant
[b] Dependent Variable: handover time

It is clear that, arithmetically, handover time decreased. Overall, there was a 1.2 hour drop from pre to post. The sample is small although there is nearly a significant effect for time (p=0.057). The average time taken to conduct handover pre-implementation at Site 1 fell by 13%. Likewise, Sites 2 and 3 experienced reductions of 70% and 67%, respectively. From a practical aspect, this can be regarded as significant. Figure 3 plots these results.

Figure 3: Mixed modelling analysis of handover pre and post times.



A comparison of the frequency of incidents on a pre and post basis was undertaken to determine whether or not the handover practice used had an effect on this area. Table 6 outlines incident frequency on a pre and post basis.

Table 6: Incident frequencies for all sites on a pre and post basis.

	Site 1		Site 2		Site 3	
Incident Category	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Burns					1	
Medication Incidents				1	5	
Skin tears		1			1	
Slips, Trips, Falls	7	1	1		2	4
OH&S Incidents			1			
TOTAL	7	2	2	1	9	4

While the overall frequency of incidents decreased in all sites during the implementation period, the distribution between categories has altered (table 6). Descriptive statistics for the number of incidents are shown below (table 7).

There is a clear trend from pre to post; the number of incidents has dropped. The analysis requires a Generalised Mixed Model since the data is not interval but counts. The Poisson distribution is typically used for data of this type (Rabe-Hesketh and Skrondal 2005) (Table 8). Time is negative and statistically significant.

Table 7: Descriptive statistics for the number of incidents.

Site	Time	Mean	N	Std. Deviation
Site 1	Pre	7.0000	7	.00000
	Post	2.0000	2	.00000
	Total	5.8889	9	2.20479
Site 2	Pre	2.0000	2	.00000
	Post	1.0000	1	-
	Total	1.6667	3	.57735
Site 3	Pre	9.0000	9	.00000
	Post	4.0000	4	.00000
	Total	7.4615	13	2.40192
Total	Pre	7.4444	18	2.20220
	Post	3.0000	7	1.29099
	Total	6.2000	25	2.82843

Table 8: Generalised mixed model with a Poisson distribution specified.

Random-effects Poisson-regression				Number of obs	=	6	
Group-variable: site				Number of groups	=	3	
Random-effects u_i ~ Gamma				Obs per group: min	=	2	
				avg	=	2.0	
				max	=	2	
				Wald-chi2(1)	=	4.50	
Log-likelihood	=	-12.119225		Prob > chi2	=	0.0340	
incidents	|	Coef.	StdErr.	Z	P>|z|	[95%Cl]	
time	|	-.9444616	.4454354	-2.12	0.034	-1.817499	-.0714243
_cons	|	1.791759	.3310484	5.41	0.000	1.142917	2.440602

Qualitative Results

Interview results showed that nurses felt the closed door handover process had many negative aspects and few advantages. According to one nurse 'it (the handover process) needed to change.

> *Sometimes we [took] an hour to handover a few patients... a lot of discussion didn't relate to handover (#033)'.*

On the contrary, interviewing revealed that bedside handover had many positive aspects and very few drawbacks. These benefits included the handover being purely patient-centred and the duration of handover being shorter. As one nurse stated:

> *It has increased efficiency of handover, time, handing over everything...issues come up so you can sort that out then and there. It's more efficient for us and patients (#333).*

Field observations and journaling paralleled findings obtained through interviewing. An excerpt from one researcher's journal of pre-intervention handovers stated 'the researcher noted several instances where handover was lengthy and staff would remain in the meeting room well after handover had concluded. This is fitting with interview data'.

Journal entries made under the post-intervention handover also supported interview data. One extract states 'notes made in the research journal support this (shorter duration) aspect. The researcher observed that staff were direct and concise and this resulted in handover taking less time to conduct'.

DISCUSSION

Handover has been identified as a leading source of clinical information that directs nursing practice (Hopkinson 2002; Taylor 2002) as well as providing opportunities for other activities (O'Connell and Penney 2001; Wilson 2007). The literature notes that these additional activities served by the handover process result in lengthy handovers (Payne et al 2000). In this study, nurses' perceptions indicate that bedside handover reduces the amount of time taken to complete the handover process.

Through interviewing and observation researchers ascertained that staff were dissatisfied with the previous process because of the lengthy duration of handovers. This is akin to literature which notes drawbacks of the traditional verbal handover include its tendency to be lengthier than bedside handover (Trossman 2009; Watkins 1993). Nurses in this study were significantly more satisfied with the shorter duration (an average reduction of 48%) taken to perform handover under the bedside format as opposed to the closed door format. From this study, it is evident that the introduction of nurse-to-nurse bedside handover resulted in a significant decrease in the time taken to undertake handover. While Site 1 started and finished with longer durations than the other sites, the researchers attribute this difference to staff numbers, patient numbers and complexity of care required in this site; not to the handover process employed. Literature pertaining to duration of various handover methods supports these findings (Wilson 2007; Lally 1999).

Furthermore, benefits experienced with bedside handover are reportedly connected to a reduction in errors, improved safety (O'Connell and Penney 2001) and better quality of care for patients (Caruso 2007; Trossman 2009). In line with this, comparison of incident frequency on a pre and post basis revealed that the bedside handover process reduced incident frequency.

CONCLUSION

This study aimed to provide knowledge about the duration and safety of two methods of nursing handover. The results of this study indicate that bedside handover approach is significantly less time consuming than the closed door approach previously adopted. The findings indicate a trend in the reduction of frequency of incidents under the bedside handover process. While literature supports this trend, it attributes increased safety to improved accuracy and timeliness of information. This directly conflicts with other findings of the study (not discussed here) that revealed that nurses were undecided about information accuracy under the bedside handover approach.

LIMITATIONS

This study was conducted with a relatively small sample size (n=48) and under the time constraints of a Bachelor of Management (Honours) program thus hindering the ability to employ more exhaustive data collection. A further limitation is that using a mixed-methods approach is more time consuming than other approaches and has resulted in a surface understanding; rather than a comprehensive exploration.

RECOMMENDATIONS

Based on the findings of this study, the authors suggest the following area for further research. The findings indicate a trend in the reduction of the frequency of incidents under the bedside handover process. However, as this reduction is not based on increased accuracy of information as the literature suggests, further research is warranted into factors, other than accuracy and timeliness of information, that may increase safety in clinical settings.

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Conditions in which nurses are exposed to the hepatitis viruses and precautions taken for prevention

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KEY WORDS

hepatitis b; hepatitis c viruses; compare; prevention; nurse

ABSTRACT

Objective
The aim of this study is to evaluate the exposure status of nurses to hepatitis B and C, and to determine the precautionary measures taken for protection from these infections.

Design
This descriptive study was performed between February and May 2008 among nurses working in surgery and internal medicine wards.

Setting
A total of 300 nurses working in the Aziziye Research Hospital and Yakutiye Research Hospital.

Subject
The nurses included in the study comprised those who had three different levels of education, namely undergraduate, associate degree and high school. The data were collected via a questionnaire composed of 34 questions. The questionnaire consisted of questions on socio-demographic characteristics, questions for estimating the frequency of exposure to blood and bodily fluids, questions about precautions, and questions for estimating HBV, HCV and the vaccination status of the nurses.

Main outcome measure(s)
A questionnaire developed by the researchers and data collected through a review of literature.

Result
The results of completed questionnaires were collated, and Chi-square test and percentage tests was used for analysis. 94.9% of the nurses participating in the study stated they had contact with blood and bodily fluids, and 75.8% of them had taken precautions during contact. The mostly commonly used preventive methods were hand washing before and after the invasive procedures on the patients (85.6%), hand washing between the invasive procedures on different patients (69%), and use of gloves (67.9%), respectively. The least used method was wearing protective glasses (0.2%). Among the distribution, injuries whilst replacing the cap of the syringe were leading (87.7%), and the least frequent were injuries sustained during the disposal of medical waste (54.6%). It was seen that 20.5% of the nurses in the study had undergone vaccination for hepatitis B. Majority of the nurses who had not had the vaccination (12.6%) stated they had not yet had the opportunity.

Conclusions
As a result of the study, it was found almost all of the nurses had been in contact with blood and bodily fluids. Above all healthcare workers should receive periodic training on universal precautions, with a view on improving the overall safety of patients and healthcare workers.

INTRODUCTION

Healthcare workers (HCWs) are at risk of occupational hazards when performing their clinical activities in the hospital setting. They are exposed to blood-borne infections by pathogens, such as HIV, hepatitis B (HBV) and hepatitis C (HCV), from sharps injuries and contact with bodily fluids (Ramos-Gomez et al 1997; Gerbending 1994; Ruben et al 1983).

Worldwide, more than two billion people are infected with HBV (Centres for Disease Control and Prevention 1989). In Turkey, about four million people, constituting 4.8% of the population, are estimated to be carriers of chronic HBV (Bilgic and Ozacar 2001; Tasyaran 2001). Hepatitis B seroprevalence studies conducted in hospitals in Turkey have shown HBsAg positivity rates of four to 15% (Bilgic and Ozacar 2001; Tasyaran 2001; Akova 1997; Badur 1994; Pamukcu et al 1990; Tekeli et al 1988).

Nearly 170 million of the world's population have been infected with HCV. Between 0 and 2% of the blood donor population in Turkey have been found to be HCV antibodily positive (Bilgic and Ozacar 2001; Tasyaran 2001), while anti-HCV prevalence within the Erzurum, Turkey community has been found to be 0.2% (Deniz 2003).

The World Health Organization (WHO) estimates about 2.5% of HIV cases among HCWs and 40% of hepatitis B and C cases among HCWs worldwide are the result of these exposures (WHO 2002).

According to a European survey of occupational exposure of HCWs to NSSIs, nurses were found to be exposed more commonly (91%) than doctors (6%) and phlebotomists (3%) (Public Health Laboratory Service AIDS and STD Centre 1999). There is a general consensus that nurses are at the greatest risk of an NSSI, with up to 50% of all NSSIs being sustained by this group (May and Brewer 2001; Hanrahan and Reutter 1997).

There is no immunisation for HIV and hepatitis C. It is important to prevent infection by preventing exposure. Since identification of patients infected with blood-borne pathogens cannot be reliably made by medical history and physical examination, universal precautions have been recommended by the Centres for Disease Control (CDC) to be used on all patients (CDC 1986; 1985).

Universal precautions are simple infection prevention control measures that reduce the risk of transmission of blood-borne pathogens through exposure to blood and bodily fluids among patients and HCWs. Compliance with these universal precautions has been shown to reduce the risk of exposure to blood and bodily fluids (Chan et al 2002).

The level of practice of universal precautions by HCWs may differ from one HCW to another. The differences in the level of knowledge of universal precautions by HCWs may be influenced by the varying types of training (Ofili et al 2003; Chan et al 2002). The absence of an enabling environment in the health institution, such as lack of constant running water or a shortage of personal protective equipment (PPE) would lead to poor compliance with universal precautions.

The aim of this study is to evaluate the exposure status of nurses to hepatitis B and C, and to determine the precautionary measures taken for protection from these infections.

METHOD

This descriptive study was performed between February and May 2008 among nurses working in the surgery and internal medicine wards, of two Turkish hospitals. A total of 300 nurses work in the Aziziye Research Hospital (with bed capacity of 384) and the Yakutiye Research Hospital (with a bed capacity of 326), with a total bed capacity of 620 in the two hospitals. Seven nurses could not be reached due to various reasons. The nurses included in the study comprised those who had three different levels of education, namely undergraduate, associate degree and high school. The data were collected by a questionnaire comprising of 34 questions. The questionnaire consisted of questions: on socio-demographic characteristics (age, education level, department

and working hours); for estimating the frequency of exposure to blood and bodily fluids; about precautions; and questions for estimating HBV, HCV and the vaccination statuses of the nurses.

Permission was obtained from the Ethical Committee of the Health Science Institute of the university and informed consent was obtained from each participant.

Before performing the questionnaire, the aim of the study was explained to the nurses; the supervising nurses were contacted and a suitable time in which the workload was low had been arranged. The questionnaire was completed by the nurses under the supervision of investigators. The time for completing the questionnaire was 15-20 minutes.

Statistical analysis

Statistical analyses of the data were performed using the Statistical Package of Social Science (SPSS 11.5) computer program. Data analyses were performed using the chi-square and percentage tests. $P < 0.05$ was considered statistically significant.

FINDINGS

The mean age of the nurses was 28.36±6.22. 33.4% of the nurses had an undergraduate level of education, and 52.6% of the nurses were found to have been working for one to five years.

Table 1: Nurses contact with blood, bodily fluids and precaution status of nurses during contact.

Characteristics	n	%
Contact with blood and bodily fluids		
Yes	278	94.9
No	15	5.1
Precautions taken during contact		
Yes	222	75.8
No	44	15.0
Could not remember	27	9.2

94.9% of the nurses participating in the study stated they had contact with blood and bodily fluids, and 75.8% of them had taken precautions during contact (table 1). Although the difference was not statistically significant, it was found that nurses (34.5%) that had graduated from undergraduate education had more frequent contact with blood and bodily fluids ($p>0.05$). It was estimated that nurses that had graduated from undergraduate education had taken much more precautionary measures (37.8%). The difference was statistically significant ($p<0.05$). Although statistically insignificant, the nurses that had been working for one to five years had much more contact with blood and bodily fluids (51.8%), and took much more precautionary measures during contact (54.1%) ($p>0.05$).

The mostly commonly used preventive methods were hand washing before and after invasive procedures on the patients (85.6%), hand washing between invasive procedures on different patients (69%), and use of gloves (67.9%), respectively. The least used method was wearing protective glasses (0.7%) (table 2).

The study found the use of double-gloves was more prominent among undergraduate nurses (47.6%) and nurses who had been working for one to five years (66.7%). However, there was no statistically significant difference between education levels and working years of nurses.

Majority of nurses (50.5%) that had contact with blood or bodily fluids preferred to have their hepatitis markers checked. There was no statistical significant difference between education levels and working years of nurses and the methods preferred after contact ($p>0.05$). It was seen that most of the nurses (43.5%) who had not

taken any action after the contact were high school graduates. Furthermore, majority of the nurses (52%) who preferred to check their hepatitis markers after the contact were found to have been working for one to five years. Most of the nurses who had searched for the presence of HCV or HBV in the patients they had contact with, were of the undergraduate education level (41.7%) and had been working for one to five years (46%). The difference was statistically significant ($p<0.05$).

Table 2: Distribution of the precautions taken by the nurses and actions taken following contact.

Characteristics	n	%
Use of barrier methods*		
Gloves	199	67.9
Double gloves	42	14.3
Uniform	33	11.3
Mask	36	12.3
Protective glasses	2	0.7
All of them	9	3.1
Do not remember	52	17.7
Washing hands before and after the procedure		
Yes	251	85.6
No	42	14.4
Washing hands between care of different patients		
Yes	202	69.0
No	91	31.0
Actions taken in case of contact with blood and bodily fluids*		
Checking the results of hepatitis markers	148	50.5
Checking whether the patient had HBV and HCV	139	47.4
Making the contact/injured area bleed	73	24.9
Washed the contact/injured area with cold water	89	30.4
Washed the contact/injured area with alcohol	35	11.9
Washed the contact/injured area with iodine solution	145	49.5
Did nothing	23	7.8

* Percentages were obtained according to the answers, because more than one answer was given by one nurse

Table 3: Distribution of nurses' contact with blood and bodily fluid.

Characteristics	n	%
Needle injury to hand		
No injury	39	13.3
Injury	254	86.7
Injury whilst replacing the needle cap		
No injury	36	12.3
Injury	257	87.7
Blood and bodily fluid contact with eye/mucosa		
No contact	78	26.6
Contact	215	73.4
Injury with sharp objects like scalpel, needle etc.		
No injury	99	33.8
Injury	194	66.2
Injury during disposal of medical waste		
No injury	133	45.4
Injury	160	54.6

Among the distribution, injuries whilst replacing the cap of the syringe were leading (87.7%), and the least frequent were sustained during the disposal of medical waste (54.6%) (table 3).

It was seen that injuries occurring due to sharp objects like scalpels and suture needles, and contact with blood and bodily fluids were most prominent among nurses who were of undergraduate education level (38.9%). The difference was found to be statistically significant ($p<0.05$).

When the working years of nurses were compared with the method of exposure to blood and bodily fluids, it was seen that 52.3% of nurses working from one to five years expirenced injuries due to needlestick pricks. The difference was statistically significant ($p<0.05$).

Table 4: Distribution of serological tests and vaccination of nurses.

Characteristics	n	%
Tests for presence of HBV		
Yes	278	94.9
No	15	5.1
Results of test		
Carrier	21	7.2
Vaccinated	209	71.3
Never come across the virus	48	16.3
Not known	15	5.2
Vaccination for HB		
Yes	234	79.5
No	59	20.5
Reason for not being vaccinated against hepatitis B (n:59)		
Unable to find opportunity	37	12.6
Thought that they were not at risk	2	0.7
Did not trust the protective role of the vaccine	4	1.4
Fear of side effects of the vaccine	3	1.0
Had hepatitis before	13	4.4
Tests for HCV existence		
Yes	166	56.7
No	127	43.3
Results of test for the presence of HCV		
Present	1	0.4
Absent	292	99.6

The study found 20.5% of the nurses had undergone vaccination for hepatitis B. Majority of the nurses who had not been vaccinated (12.6%) stated they had not had the opportunity to have the vaccination.

As a result of the study, it was found that 47.6% of the nurses, who were of undergraduate education level and had worked for one to five years, were carriers. Among the nurses who had not undergone vaccination, 40.7% were high school graduates and 52.5% had been working for one to five years. The difference between hepatitis B vaccination and education level, and the number of years worked was statistically insignificant ($p>0.05$).

While researching the reasons for not being vaccinated, it was found half of the nurses who did not believe the protective role of vaccination were high school graduates and the other half were undergraduates. The

nurses, who had not been vaccination due to the side effects, were all nurses who had been working for one to five years. The difference between the reasons for non-vaccination, the education level, and the number of working years was statistically insignificant ($p>0.05$).

Among the nurses who had not undergone testing for hepatitis C, it was seen that the majority of them (37%) were high school graduates and 61.4% had been working for one to five years.

There was a statistically significant difference between the working years and having been tested for hepatitis C ($p<0.05$), but no statistically significant difference was found between the educational level and having been tested for hepatitis C ($p>0.05$).

DISCUSSION

As a result of the study, it was found almost all of the nurses (94.9%) had been in contact with blood and bodily fluids. The results were found to be concordant with that of the literature (Erol et al 2005; Çelik 2006).

This may be explained by the insufficient number of nurses at work sites, the insufficient number of medical devices, lack of attention, a desire to finish the work quickly due to the length of some operations, poor organisation, heavy workloads, and multiple or repeated attempts to complete a procedure (Johnson et al 1998; Clarke et al 2002).

It was determined that the nurses who had been working for one to five years had more contact with blood and bodily fluids. In recent studies, it was found that hepatitis B serum marker positivity was high among nurses in the first five years (Averhofth et al 2002). This emphasised the importance of experience in nursing.

When the education levels of nurses and contact with blood and bodily fluids were compared, it was seen that undergraduate nurses had much more contact with blood and bodily fluids. The reason for this result may be due to the high workload, and place of work in which there was an inadequate number of healthcare providers.

It was found majority of the nurses (75.8%) had taken precautions during contact. These results were found to be similar with those of the recent studies (Çelik 2006).

When the number of working years of nurses and contact with blood and bodily fluids were evaluated, it was determined that nurses working for one to five years had taken more precautionary measures. This result demonstrated that nurses working for one to five years had not forgotten the information provided during their training.

When the relationship between educational levels of nurses and precautions taken during contact were investigated, undergraduate nurses were seen to have taken much more precaution.

It was found that the most frequently used preventive methods were hand washing before and after invasive procedures on patients. Wearing gloves followed.

Sadoh et al (2006), found washing hands before and after invasive procedures on patients and wearing gloves were the two most preferred methods, respectively. Being easier than the other methods and also being important for personal hygiene, washing hands could be effective in obtaining this result. It was found that wearing protective glasses was the least used protective method. In the study by Jeong et al (2008) it was found that the use of protective glasses was also low.

Nurses of undergraduate educational level were found to be those who mostly wore double gloves. It was found in a study by Jeong et al (2008) that healthcare providers were wearing double gloves more and more.

Half of the nurses stated they had checked their hepatitis markers after contact with blood and bodily fluids. Most of the nurses (43.5%) who had taken no action after the contact were high school graduates. Most of the nurses, who had searched for the presence of HBV and HCV in their patients, had been working for one

to five years and were university graduates. A previous study determined a vast majority of nurses knew what to do after contact with hepatitis patients (Ayranci and Köşgeroğlu 2004).

These results showed that nurses need education programs on this subject. It was found that needlestick injuries were the most frequent way of contact with blood and bodily fluids in nurses, and this result is the same as that in previous studies (Ayranci and Köşgeroğlu 2004; Hamory 1983; Dokuzoğlu 1999; Guo et al 1999; Smoot 1998; Shiao et al 2002; Trim and Elliott 2003; McCormick and Maki 1981; Erbay et al 2002).

When the method of contact with blood and bodily fluids was evaluated according to the educational levels, needle and sharps injuries were more frequently seen in inexperienced (one to five years) and undergraduate nurses. The lower degree of experience for nurses who had been working for lesser number of years may affect the results. This finding clearly indicates that nurses need some form of educational program on the prevention of needle and sharps injuries.

Although the vaccination rate against hepatitis in previous studies was found to be 32.4%, the vaccination rate in this study was 20%. The most preverlent reason among the nurses for not having been vaccinated (12.6%) was the inability to find an opportunity to be vaccinated. These results were concordant with that of previous studies (Çelik 2006; Ayranci and Köşgeroğlu 2004; Doğan 2005; Pamukçu 1989). This could be solved by the implementation of a locally funded inoculation program in order to reduce the problems of chronic hepatitis.

Generally the unvaccinated nurses were high school graduates, and had been working for one to five years. While most of the nurses (66.7%) working for one to five years specified the fear of side effects of the vaccine for not having been vaccinated, half of the high school graduate nurses found the vaccine untrustworthy. This showed that the nurses need education on the importance of vaccination against hepatitis B.

It was found that most of the carriers (47.6%) were nurses who had been working for a shorter period of time (one to five years). This result was similar with the results of studies performed previously by Ayranci and Köşgeroğlu (2004).

Needle and sharps injuries were seen more frequently in the first years of nursing. In addition, this result stresses nurses entering the profession should be educated on universal precautions and be immunised. In agreement with Eholie et al (2002) the authors believe the prevention of needle and sharps injuries through education and training of healthcare personnel for universal precautions is of great importance.

CONCLUSION

All healthcare workers should be vaccinated against the hepatitis-B virus to reduce the risk of hepatitis-B blood infection. All medical facilities should establish a post-exposure prophylaxis program for the protection of healthcare workers who experience needlestick injuries. Above all, healthcare workers should receive periodic training on universal precautions, with a view on improving the overall safety of patients and healthcare providers.

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Clinical assessment and the benefit of the doubt: What is the doubt?

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KEY WORDS

Clinical education, assessment, competence, clinical supervisor preparation

ABSTRACT

Introduction
Clinical education and associated assessment is an important component of nurse education. A range of factors contribute to a culture that makes the assessment of clinical competence difficult. These factors are environmental, educational, cultural and linguistic diversity amongst students, student expectation, a diverse range of clinical education models. All of which contribute to the variable quality of the clinical education experience and the outcome of clinical assessment.

Aim
The term 'benefit of the doubt' is frequently heard in relation to the assessment process; and, despite the utilisation of a seemingly comprehensive competency framework to assess clinical learning for close to two decades, it seems that a concerning level of doubt persists. The aim of this paper is to examine the complex factors that impact on the quality of decisions around competence the decision by an assessor to assign a judgement of competent or not, and to explore the reasons that lead to doubt on the part of the assessor and to suggest some possible solutions.

Conclusion
It is suggested that what is needed going forward is a continued commitment on the part of government, the health sector, the tertiary education sector and the National Regulatory Authority to implement, value and extend the initiatives that are currently being developed to insure a viable and sustainable education and training culture for clinical supervisors in the future.

INTRODUCTION

Clinical education and the associated assessment is an important component of nurse education. The authors' experience of coordinating large clinical subjects in preregistration nursing courses combined with relevant literature has largely informed this discussion. The term 'benefit of the doubt' is frequently heard in relation to the assessment process; and, despite the utilisation of a seemingly comprehensive competency framework to guide and assess clinical learning for close to two decades, it seems that a concerning level of doubt persists.

AIM

The aims of this paper are to examine the complex factors that impact on the decisions making processes when determining competence, and to explore the reasons that lead to doubt on the part of the assessor. The main question being 'what is the doubt' and how it can be minimised.

A range of factors contribute to a culture that makes the assessment of clinical competence difficult; these factors are environmental, educational diversity, cultural and linguistic diversity, student expectation, a diverse range of clinical education models and clinical educator preparedness for the role.

ENVIRONMENT

The clinical learning environment has been aptly described as a highly complex space occurring at the intersection of health care and education; occupied by numerous health professionals and professional bodies, involving government and non-government employer agencies and multiple levels of authority (National Review of Nurse Education 2002).

Educational Diversity and Expectation

There has been an increase in enrolments across courses and institutions with the move from an elite to a mass education system. This has led to an unprecedented level of heterogeneity amongst the undergraduate student population in Australian universities; and, nursing has been at the forefront of that diversification.

Students' expectations of their educational experiences in nursing are shaped by at least three factors: educational diversity, cultural and linguistic diversity; and, expectations of the tertiary education experience (Deegan 2008).

Range of Entry Pathways

In recent years a number of initiatives have been introduced to improve access to the Bachelor of Nursing preregistration course. For example, provision for increasing the numbers of mature age students and a two-year accelerated program to assist enrolled nurses and graduates of other degree programs to progress to a registered nurse qualification. This has led to a diverse range of prior educational experiences.

This diversity often creates challenges for students, academic staff and clinical educators alike. The challenges for academics and clinical educators, are centred on the learning needs of these diverse groups in terms of readiness for the rigours and complexity of the preregistration curriculum; and, in particular the complexities of the clinical learning environment. Muldoon and Pendreigh (2003) found that, students in Bachelor of Nursing programs, struggle with tertiary and professional literacy requirements despite being highly motivated. These authors acknowledge that while lecturers are aware of these issues they do not always have the time and the expertise to address them effectively; only to have them resurface in the clinical environment where accuracy in written and verbal communication is paramount to both clinical learning and patient safety.

Cultural and Linguistic Diversity

The internationalisation of tertiary education is not a new phenomenon. However, with increasing trends in globalisation in recent years has led to increased demand from international students participating in university courses in Australia (Marginson et al 2011); and despite the recent downturn in numbers of international students there has been a 1.4% increase in the tertiary sector in 2010 (Rosenberg 2011). In this context students who are deemed most at risk are international students, who gain entry into the accelerated nursing program through the recognition of a previous undergraduate degree qualification in another discipline. Quite often a discipline quite disparate from nursing; where basic science and human bioscience are not part of the curriculum. Compounding this, international students in general face complex challenges associated with unfamiliar approaches to education, as many of them are familiar with didactic approaches to teaching; and, rote learning versus more independent problem solving approaches encouraged in Australian universities (O'Neill and Cullingford 2005).

In addition to these adjustments, international students are faced with the need to adapt to cultural and social differences (Baker and Hawkins 2006). Students of nursing are particularly affected by communication and cultural adaptation processes as they apply to the learning encounter. This is because the compulsory clinical education component of nurse education brings them face to face with the daily workings of the health care system and the culture of nursing in Australia (Kilstoff and Baker 2006), thus making the assessment of theoretical, interactional and procedural knowledge difficult in the clinical environment.

Models of Clinical Education

Models of clinical education range from preceptorship, mentorship, or clinician led supervision models to the clinical teacher led model. The latter sometimes referred to as clinical supervisor, or clinical educator; can be either a university or hospital employee. In turn, each clinical venue will have a particular preference in terms of the clinical education model to be utilised to support students on placement. A major factor in deciding this model includes the partnership arrangements between the health care facility and university; but more importantly, the skill mix of the nursing staff available at the health care facility to participate in clinical supervision.

Preceptor/mentorship

The preceptor/mentor is a registered nurse (clinician) who is employed by the clinical venue. The preceptor/mentorship model is generally a 1:1 arrangement with support from a heath care facility education coordinator, and or, a university based academic. However, the demands placed on mentors by an increasingly demanding patient load and limited resources make assessment in practice problematic, given the one-on-one teaching for each skill and incorporating the knowledge base with holistic care (Bonreuf and Haigh 2010 p.198). Having to balance the assessment process with care delivery and, associated duties means that the continuity of the student assessment process is often interrupted, and not viewed as a priority. Adding to this complexity, McCarthy and Murphy (2007) found that the majority of preceptors are inexperienced and do not fully comprehend the student assessment process. They revealed many preceptors focus on the student's practical skills rather than focussing on the holistic care of patients. McCarthy and Murphy concluded the preparation of preceptors was inadequate given the complexity of the clinical assessment process.

The Clinical Teacher/Educator Model

The clinical teacher model means an educator is employed by the university on a casual basis and deployed to the clinical venue with responsibility for supervising the clinical learning and assessment of up to eight students at a given time. This model although seemingly sound from an educational perspective has some serious limitations from the point of view of familiarity with the clinical environment; and, in some cases with the clinical speciality that makes up the student's learning space.

The alternative clinical teacher model which seems to work well from the perspective of the provision of a quality student learning experience is the one, where the supervising clinical teacher is appointed by the health care facility, to work exclusively with nursing students, from various universities without the added responsibility of a patient load. Thus the focus is on the achievement of a quality learning experience within a setting; which although, unfamiliar to the student, is very familiar to the educator.

Preparation of Clinical Educators

In considering the range of clinical education models there are several factors that make a standard model of preparation and, ongoing performance review of educators difficult to plan and implement. Firstly, at the national and international level there seems to be no consensus on minimum qualifications or required experience for clinical educators (Salminen et.al. 2010). As Younge et al (2008) point out that role of the preceptor in the clinical environment does not have professional standards for clinical teaching, with Kaviani and Stillwell (2000) recommending the inclusion of career path competencies. In Australia whilst universities do have some formal preclinical preparation such as professional development workshops for clinical educators; being either, preceptors, or clinical teachers; the duration and content varies and there are numerous barriers to their attendance. Firstly, workshops need to have a generic focus due to the diverse range of clinical education models, and specific requirements of clinical venues. Consequently, workshop attendees are frequently exposed to content that is not always pertinent to them. Secondly, there are financial considerations for nurses to attend these workshops. For example, if the supervisor is a casual employee of the university, they may be in other casual or part-time employment when the workshop is scheduled, which makes attendance not possible. Similarly, if a preceptor, clinical supervisor is provided by the clinical venue, the financial costs to the university to have the staff member released are substantial. Similarly, as universities face budgetary constraints, they are often not in the position to provide an increased reimbursement to the clinical venue, and in turn the clinical venue cannot release the staff member due to the ongoing staffing shortages in nursing. Thus the competing demands of concurrent employment, budgetary and staffing constraints in both sectors all contribute to low levels of attendance at clinical educator workshops.

Competence Defined

Assessing clinical competence is a complex process and competency is generally affected by an individual's perception and understanding of what competency is (Rutkowski 2007). Demonstrating generic skills can be challenging for the student who is often distracted by the presence of the patient when learning how to perform a new skill. Being faced with two distinct aspects of patient care can affect the students ability to do both well (Borneuf and Haigh 2010). Benner (1984), one of the most influential scholars in nursing, has defined clinical competency as the ability to perform tasks with the desirable outcomes under varied circumstances of the real world. In Australia clinical competence for assessment purposes is guided by the Australian Nursing and Midwifery Competency Framework. The ANMC Framework relates to the professional, legal and ethical responsibilities which require demonstration of a satisfactory knowledge base and accountability for practice. In addition, there is generally a Subject Outline indicating the clinical skill and associated knowledge that students need to demonstrate and articulate in order to be successful in completing a given clinical subject. However, despite this there seems to be a persistent dichotomous relationship between observable motor skill and the acquisition of skills in communication, critical thinking, critical decision making and other generic skills, with many educators struggling to articulate problems with student behaviours referring to them as 'grey areas' or just 'difficult to pinpoint' and consequently giving the student 'the benefit of the doubt; despite the fact that the achievement of such skills are incorporated in the ANMC Competency Framework and associated codes.

Challenging behaviours are often viewed as the most difficult to deal with in the context of assessment. According to Luhanga et al (2008, p.258) a challenging student is one who has: difficulty learning, easily distracted, attitude problems as in defensive behaviour and lack of motivation to learn resulting in frequent repetitive mistakes and failure to implement basic safety measures such as asepsis, resulting in potential danger to patients. Lahunga et al concluded that students may not always be receiving adequate knowledge skill preparation at the university level. Conversely, Duffy (2003) found that a student would only be failed when 'unsafe' practice was demonstrated. This is in keeping with the findings of McCarthy et al (2007) that educators were only concerned with safe practice and not with the knowledge and behaviours and attitudes necessary to support it. Whilst the focus of any clinical placement is for the student is to optimise clinical learning opportunity, the flip side of the coin, seems to be the point at where learning is separated from competency. It was noted by Duffy that assessors repeatedly gave the student the 'benefit of the doubt'.

The question here becomes: What is the doubt? It will be argued that at least two possible explanations exist for the persistence of this indecision. Firstly, assessors are not adequately prepared and experience stress caused by demands of managing the many dimensions of the role; frequently being expected to act as student counsellor, teacher, role model, nurse clinician and liaison person between health provider and the university (Duke 1996). Secondly, that the clinical learning environment is complex and variable and frequently supervisors struggle to combine the vicissitudes of a large complex clinical nursing role with the role of educator.

DISCUSSION

The exploration of this topic has raised a complex mix of educational, political, service, financial issues, all of which contribute amongst other things to inadequate preparation and support for clinical educators; which, in turn make assessment of competence in the clinical learning environment difficult to achieve with a high degree of confidence. What is needed then is a practical and sustainable solution to a complex and persistent challenge. The design of the Australian National Competency Standards for the Registered Nurse (ANRA 1990) coincided with the transfer of undergraduate nurse education to the tertiary sector following generations of training under the apprenticeship system. The domains of the National Competency Standards for the Registered Nurse are intended to guide the assessment of student progress and achievement in applying theory to practice (ANMC 2006). However, there seems to be a persistent disconnect between the intent of the framework and the manner in which it is used, if at all, to guide learning and assessment. What was neglected from the outset was a national coordinated approach to the preparation of clinical educators to fit the new national competency model.

Hence, it seems that the theory practice gap persists with variable levels of collaboration between education providers and their health counterparts largely related to a lack of a structured cross sectoral communication strategy and an adequately funded quality approach to the education and training of clinical supervisors.

According to Richardson et al (2000) the learning that a student experiences in the clinical area is frequently only as good as the nurse that supervises them. Hence the personality, personal traits, interpersonal relationships skills as well as the competency and clinical decision making skills of the educator, influence the performance of quality self-efficacy. However, these personal and professional traits are frequently compromised by a range of factors for example Duke (1996) found even though educators were skilled at identifying student problems they were reluctant to make difficult evaluation decisions due to low self-esteem, role conflict and their ethic of caring. Kaviani and Baker (2000) found that the personal and professional development of preceptors, and in turn a positive partnership with university staff are vital in educating students. This was

supported by a Canadian study where Younge et al (2008) found that the quality of the experience of being a preceptor correlated with the level of support provided by the university academics; which goes beyond the initial workshop (McCarty and Higgins 2003).

Self-efficacy it is argued here can be promoted by formal education courses and teaching experiences, enabling the educator to bring about effective student learning by applying education theory, managing the learning environment, meeting goals and judging competencies.

Maddock (2009) noted that ,training involves honing of the mind for the purpose of someone other than the person; whereas, education is the exact opposite, in that it entails not dissociation, but utter integration of knowledge and the self, self-knowledge.(p.1). The focus then must be on formal education courses for supervisors that combine formal education and training, aimed at the development of professional mastery, self-efficacy and self-esteem and the utilisation of those attributes in the teaching and assessment process.

At present the Health Department of Victoria in partnership with Health Workforce Australia (HWA), have introduced a number of initiatives by way of funded projects; aimed at increasing capacity for clinical education. The projects are administered by the Victorian Clinical Placement Council (VCPC), through eleven Clinical Placement Networks (CPNs). The most relevant of these initiatives in the context of this paper is Clinical Supervision and Support Program. The Clinical Supervision and Support Program has a cross-sectoral multidisciplinary focus, aimed at the education and training of the clinical supervision workforce. The most innovative element of this initiative is the cross sectoral focus; with applications for funding requiring evidence of a collaborative commitment between public, private health care providers and education providers.

CONCLUSION

Many issues related to the difficulties associated with accurate assessment of competence have been identified. The key argument being that the current preparation of clinical educators is variable, leading to confusion around student teaching, assessment and management of the learning environment. The Clinical Supervision and Support Program can be regarded as significant catalysts for change around the strengthening of professional relationships at the organisational level, improving communication and collaboration between university academics and clinical placement providers; and, the development of formal teaching and assessment skills, self-efficacy and in turn improved self-esteem. However, what is needed going forward is a continued commitment on the part of government, the health sector, the tertiary education sector and the National Regulatory Authority to implement, value and extend the initiatives that are currently being developed to insure a viable and sustainable education and training culture for clinical supervisors in the future.

RECOMMENDATIONS

- Ongoing commitment by government, the tertiary education sector and health providers to sustain developments around supervisor training.
- The development of a universal generic formal qualification for all clinical educators within a competency framework.
- A strengthening of professional relationships at the organisational level with a view to improving communication and collaboration between university academics and clinicians.
- A requirement by course accreditation authorities that the plan, and annual budgetary allocation for the preparation and ongoing support of clinical educators be submitted as part of the curriculum approval process.

- A commitment on the part of education providers and the health sector to budgetary provision for the development of clinical educators.
- A reduced patient load for clinicians charged with a supervisory role.
- Active promotion of attitudinal change to the status of the clinical educator regardless of the terms or organisational basis of their employment that is be they employed by a hospital or university.

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Lifestyle risk factor modification in midlife women with type 2 diabetes: theoretical modelling of perceived barriers

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KEY WORDS

Barriers, diabetes, risk factors, health promotion, women

ABSTRACT

Objective
The aim of this paper is to highlight the importance of the concept of *perceived barriers* in health promotion for risk factor reduction, and to describe a 'Perceived barriers and lifestyle risk factor modification model' which could potentially be incorporated into existing frameworks for diabetes education to enhance lifestyle risk factor education in women with type 2 diabetes.

Setting
Diabetes education, community health

Primary argument
'Perceived barriers' is a health promotion concept that has been found to be a significant predictor of health promotion behaviour. There is evidence that women face a range of perceived barriers that prevent them from engaging in healthy lifestyle activities.

Despite this evidence, current Australian and international evidence based frameworks for diabetes education do not explicitly incorporate the concept of perceived barriers to action. Building on existing frameworks for diabetes education and elements of Pender's Health Promotion Model (1982, 2006, 2010), a model of risk factor reduction which incorporates 'perceived barriers' is described.

Conclusion
Although further research is required, it is argued that current approaches to risk factor reduction in type 2 diabetes could be enhanced by assessment and goal setting to reduce an individual's perceived barriers to lifestyle behaviour change. A 'Lifestyle risk factor modification and perceived barriers model' could potentially provide an innovative approach to support this.

INTRODUCTION

Type 2 diabetes is a significant cause of morbidity and mortality in Australian women (AIHW 2010). An important part of diabetes education includes providing information and goal setting to address lifestyle risk factors including smoking, nutrition, alcohol and physical activity (Colagiuri et al 2009).

'Perceived barriers' is a theoretical construct that is described in a number of health promotion models and social-cognitive theories including the health belief model (Becker et al 1977) and the health promotion model (Pender 1982). There is substantial evidence from research conducted over a number of decades that 'perceived barriers' are a significant predictor of health promoting behaviour (Pender 2006) and that women face a range of environmental, social and barriers that prevent them from engaging in healthy lifestyle activities (Gatewood et al 2008; Osuji et al 2006; Perry, Rosenfeld, and Kendall 2008; Wilcox et al 2003; Williams et al 2006). Despite this evidence, current evidence based guidelines for lifestyle risk factor modification in type 2 diabetes (Diabetes Australia 2007; 2009; 2011/12; International Diabetes Federation 2003) do not explicitly incorporate the concept of barriers or how to overcome barriers to action.

Building on elements of Pender's health promotion model (HPM) (1982, 2006, 2010), this paper proposes that the concept of perceived barriers to lifestyle risk factor modification could be incorporated into existing frameworks for diabetes education to enhance lifestyle risk factor education in type 2 diabetes. The development of a 'Lifestyle risk factor modification and perceived barriers model' is described with clinical practice applications suggested.

BACKGROUND

Type 2 diabetes

Type 2 diabetes poses a significant health issue for the international and Australian community and has been identified as a priority area for prevention and management policies and strategies (National Health Priority Action Council 2006; WHO 2008). In 2005 an estimated 1.1 million people worldwide died from diabetes and in 2009, there were around 200 million people with type 2 diabetes (WHO 2009). Recent data from the Australian Institute of Health and Welfare (AIHW) indicates that the prevalence of diabetes in Australia has trebled since 1989 – 90, however current figures do not represent the real prevalence as the illness often remains undiagnosed (2010). In women, the prevalence of type 2 diabetes increases markedly after the age of 45 years (AIHW 2008) and in 2007 was the seventh highest cause of death in women over 65 years of age (AIHW 2010). In 2007, a total of 13,101 (9.5%) of all Australian deaths were attributable to diabetes, with predictions that type 2 diabetes will be the leading cause of disease burden by 2023 (AIHW 2010). Diabetes, as an underlying cause of death, is strongly associated with other causes of death including coronary heart disease, kidney disease, heart failure and stroke (AIHW 2010).

It is estimated that 80% of type 2 diabetes is preventable primarily through a healthy diet and regular moderate exercise (WHO 2009). There is evidence that interventions to target these modifiable risk factors can reduce the relative risk of developing type 2 diabetes in at risk individuals (Lindström et al 2003; Lindström et al 2006; The Diabetes Prevention Program Research Group 2002; Tuomilehto et al 2001). There is also evidence that risk factor reduction in type 2 diabetes improves diabetic control and reduces short and long term complications (Colagiuri et al 2009; Eigenmann and Colagiuri 2007). So on diagnosis of type 2 diabetes, an essential component of diabetes care and education should include assessment of non-modifiable and modifiable risk factors especially smoking, nutrition, alcohol intake and physical activity.

PERCEIVED BARRIERS

Health promotion models and perceived barriers

Health promotion has been described by WHO as "the process of enabling people to increase control over the determinants of health and thereby improve their health" (1986). WHO's *Global strategy on diet, physical activity and health* (WHO 2005) targets chronic diseases such as type 2 diabetes, and recommends health promotion activities and strategies should focus not only on social and environmental risk factors but also individual behaviour change to address risk factors. In this context, lifestyle risk factor modification in type 2 diabetes education can be described as health promotion.

Perceived barriers is a health promotion concept first clearly described in the health belief model (HBM) (Becker 1974) developed in the 1950s and 1960s by social psychologists to explain the failure of people to participate in public health programs such as immunisation and tuberculosis screening in the United States of America (USA). In the HBM perceived barriers are obstacles or impediments to taking action in response to a perceived threat of illness which influence whether or not action is taken (Becker et al 1977). In a review of studies conducted in the 1970s and 1980s that used the HBM, of all the concepts measured, perceived barriers were reported to be the single most powerful predictor of health promoting behaviour across all studies and behaviours (Janz and Becker 1984). Pender's health promotion model (HPM) was developed in the early 1980s with the aim of integrating nursing and behavioural science theory to promote high level personal health and well-being (Pender 1982, 2006; Pender, Murdaugh, and Parsons 2010). The HPM is multidimensional and reflects WHO principles of health promotion and also incorporates constructs from social-cognitive theory such as self-efficacy, and from the health belief model the concept of perceived barriers. *Perceived barriers* have been defined by Pender and colleagues as:

> *"real or imagined…perceptions concerning the unavailability, inconvenience, expense, difficulty, or time consuming nature of a particular action…often viewed as mental blocks, hurdles, and personal costs of undertaking a given behaviour…loss of satisfaction from giving up health-damaging behaviours…may also constitute a barrier"* (Pender 2006, p. 53).

In a review of studies using the HPM as a theoretical construct, 79% provided evidence that perceived barriers are important determinants of health promoting behaviour (Pender 2006). In particular there are a number of studies where barriers to action have been found to be significant predictors of health promoting behaviour especially exercise behaviour (Jones and Nies 1996; Kaewthummanukul et al 2006; Moore et al 2003; Osuji et al 2006; Stuifbergen, Seraphine, and Roberts 2000).

Perceived barriers in women

In the context of a study investigating perceived barriers to healthy lifestyle activities in midlife and older Australian women with a chronic disease (McGuire 2011), a literature search was undertaken using electronic databases with a range of search terms used including: 'perceived barriers', 'women', 'chronic disease', 'diabetes', 'health promotion' and 'risk factors'.

A review of this literature revealed substantial evidence that women face a range of barriers that prevent them from engaging in healthy lifestyle activities. Much of the research has been conducted in the USA, where studies have explored the perceived barriers for well African American women with evidence that barriers of time, fatigue, family responsibilities, physical exertion, and motivation are significant (Jones and Nies 1996; Wilcox et al 2003; Wilcox et al 2005; Wilcox et al 2002; Williams et al 2006). Other studies in the USA have explored the barriers to exercise in minority group women such as Latina and American Indian women, with similar themes emerging with the most common barriers being time, fatigue, lack of energy, role responsibilities and personal health factors (Heesch et al 2000; Juarbe et al 2002). Perceived personal

and environmental barriers to physical activity and health promoting activity in rural women have been found to include fatigue, lack of time, bad weather, no energy and no motivation (Osuji et al 2006; Paluck et al 2006). Barriers to risk factor modification in women without a history of coronary heart disease have been explored with a sub-sample of women in the 'Wisewoman' project, with women who fully participated in a health promotion program having significantly fewer barriers to attendance than other participants who had minimum or no program participation (Gatewood et al 2008). Perceived barriers to health promotion, smoking history, family history of coronary heart disease and knowledge of coronary heart disease were predictors of health promotion behaviour in a group of women who had low risk factors for coronary heart disease (Thanavaro et al 2006).

In the Australian context, a recent mixed method Queensland study used questionnaire and interviews to investigate exercise and dietary behaviour change in rural and urban midlife women (Anderson 2008). In this study, which focused on self-efficacy, 29 participants were interviewed about facilitators and obstacles to change. The main obstacles identified were work commitments, care giving commitments, illness, and injury.

Studies that have explored the perceived barriers for women with a chronic disease are fewer in number than those exploring barriers in well women. However, most reported barriers are similar: time, cost, lack of energy, safety, and social support (Crane and McSweeney 2003; Mosca et al 1998; Perry et al 2008). Other barriers, reported by women with a chronic disease, relate to specific diseases such as osteoarthritis, multiple sclerosis, and cardiovascular disease. They include: pain, other medical illnesses, fear of falling, and cardiac symptoms (Crane and McSweeney 2003; Pierce 2005; Shin et al 2006).

A recent study of African American women with type 2 diabetes found evidence that physical environmental barriers were negatively correlated with exercise self-efficacy and a decreased sense of community (Komar-Samardizija et al 2012). In Australian indigenous women with type 2 diabetes attending a diabetes cooking course, barriers to dietary change included lack of family support, social isolation caused by dietary change, poor oral health, depression, cost of food and generational food preferences (Abbott et al 2010). Some similar results emerged in a study of dietary behaviours in women with gestational diabetes with the barriers of confidence and skills in cooking healthy foods, family food preferences and time pressures reported (Zehle, 2008).

Work by Becker and colleagues in the early 1990's led to the development of a scale to measure barriers to health promotion activities in people with disabilities (Becker et al 1991; Stuifbergen and Becker 1994). More recently, research has investigated perceived barriers to health promotion activities in women with multiple sclerosis, polio, post-polio syndrome, and fibromyalgia, with a number of these studies reporting perceived barriers as a significant predictor of health promoting behaviour (Beal et al 2009; Becker and Stuifbergen 2004; Stuifbergen et al 2003; Stuifbergen et al 2000).

In Australia, a recent study explored the level and type of perceived barriers to healthy lifestyle activities in a sample of 46 midlife and older women with type 2 diabetes attending community health clinics with an average age of 66 years (McGuire 2011). In this study barriers were measured using the *Barriers to Health Promotion Activities among Disabled Persons* scale (BHADP) developed by Becker and colleagues (Becker et al 1991; Stuifbergen and Becker 1994). The leading barriers reported by the women were: lack of interest; concern about safety; fatigue; lack of money; feeling what they do doesn't help and lack of time. The average total barriers score for this group of women with type 2 diabetes was similar to the level of barriers reported in women with physical disabilities such as multiple sclerosis and post-polio syndrome (Becker and Stuifbergen 2004). While this was a small study it provides some evidence that midlife and older women with type 2 diabetes report a level and range of perceived barriers which impact on their ability to lead a healthy lifestyle.

DIABETES AND LIFESTYLE RISK FACTOR MODIFICATION

In Australia, the Australian Diabetes Educators Association is involved in training and credentialing of Diabetes Educators and recommends the use a number of evidence based guidelines (Australian Diabetes Educators Association 2011), in particular the *Outcomes and indicators for diabetes education: A national consensus position* (Eigenmann and Colagiuri 2007) and *Diabetes management in general practice guidelines for type 2 diabetes* (Diabetes Australia 2009).

The *Outcomes and indicators for diabetes education: A national consensus position* incorporates best available evidence into a framework specifically for diabetes education (Eigenmann and Colagiuri 2007). The *Penultimate framework of outcomes and indicators for diabetes education* includes indicators that contribute to promoting the outcomes of optimal adjustment to living with diabetes, physical health and cost effective care under the four domains of *knowledge, self-determination, psychological adjustment, and self-management*. 'Physical activity' and 'appropriate eating' are listed as indicator areas in the *self-management* domain of the framework, alongside 'practical skills' (self-monitoring blood glucose; foot care, insulin injections), 'medication taking' and 'problem solving skills'. While this evidenced-based consensus framework has been developed through extensive consultation with stakeholders, it is interesting to note that risk factor reduction falls under the broad domain of *self-management*, with lifestyle factors such as smoking and alcohol consumption not included in the model (Eigenmann and Colagiuri 2007, p.36).

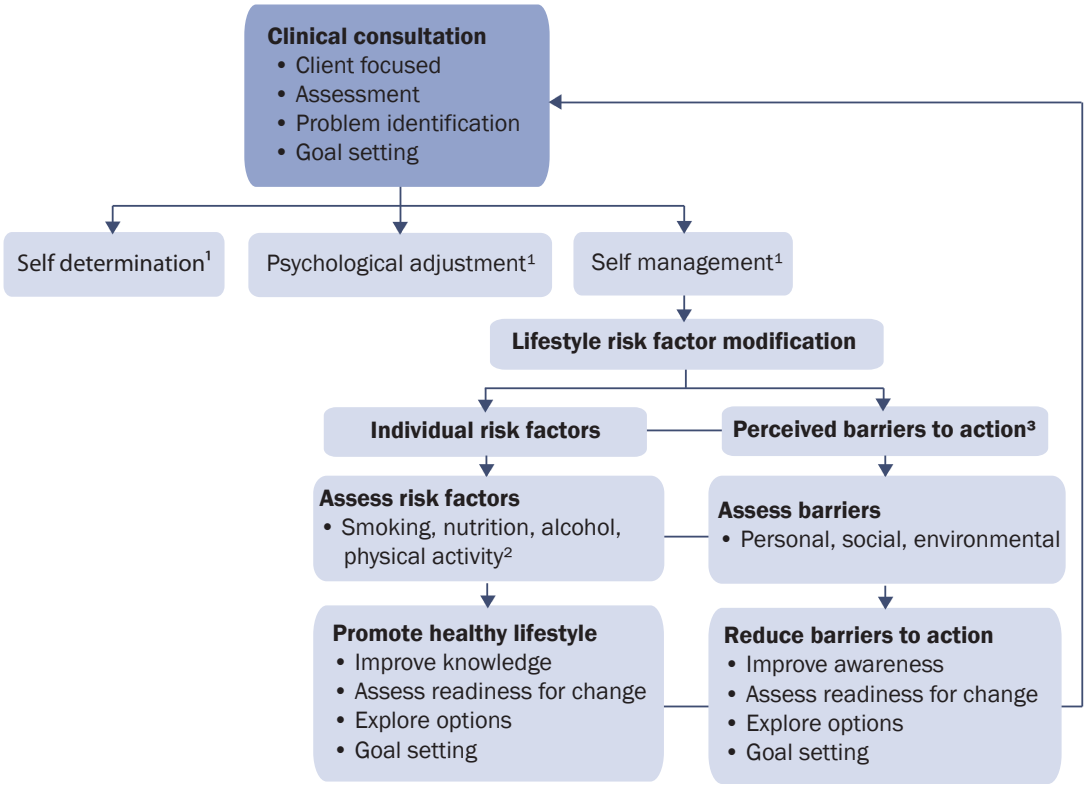
In contrast, the *Diabetes management in general practice guidelines for type 2 diabetes* developed for general practitioners, explicitly refer to the assessment of 'SNAP risk factors (smoking, nutrition, alcohol and physical activity)'. The guidelines emphasise the importance of establishing of a long-term lifestyle plan with for risk factor reduction (Diabetes Australia 2009).

There is no doubt that these frameworks and guidelines provide an approach to diabetes education that reflects the best available evidence about the key components of diabetes education. However, in terms of risk factor reduction in type 2 diabetes, what does not seem to be explicitly emphasised is the importance of identifying perceived barriers that prevent an individual from engaging in healthy lifestyle activities. Given the evidence from studies using the health belief model and health promotion model that perceived barriers are an important determinant of health promoting behaviours, it is argued that risk factor modification could potentially be enhanced by formal assessment and goal setting explicitly targeting perceived barriers.

Building on theoretical ideas developed following a study of perceived barriers to action in midlife and older Australian women with type 2 diabetes (McGuire 2010), effort was made to conceptualise how perceived barriers could be assessed and addressed in clinical practice. The resulting 'Lifestyle risk factor modification and perceived barriers model' incorporates the perceived barriers to action construct from Pender's health promotion model and expands the domain of *self-management* described and illustrated in the *Penultimate framework of outcomes and indicators for diabetes education* (Eigenmann and Colagiuri 2007, p.36).

The proposed model (figure 1) illustrates how in the clinical context of diabetes education where individual lifestyle risk factors such as smoking, nutrition, alcohol intake and physical activity are assessed, perceived barriers are also assessed. While education and information about healthy lifestyle behaviours is encouraged through realistic goal setting, perceived barriers are also identified and discussed. For example, if a client has a low level of physical activity then education is provided about the benefits of regular exercise with personal goal setting to promote an increase in physical activity. A client may identify lack of time or concerns about safety as barriers to increasing physical activity, and once factors are identified a clinician can explore options for overcoming those specific barriers.

Figure 1: Lifestyle risk factor modification and perceived barriers model



Notes: This model illustrates how assessment of perceived barriers can be undertaken in clinical practice. The model incorporates elements from:
[1] Penultimate framework of outcomes and indicators for diabetes education (Eigenmann and Colagiuri 2007, p. 36);
[2] Diabetes management in general practice guidelines for type 2 diabetes (Diabetes Australia 2009); and
[3] Health Promotion Model (Pender 1982, 2006, 2010).

This model aims to provide a framework for lifestyle risk factor modification not only to improve client knowledge and commitment to reducing individual risk factors but to also improve awareness and commitment to overcoming perceived barriers that prevent women reducing risk factors. While further research is needed to investigate the validity of the model and the impact on risk factor reduction, there are a number of potential applications for the model. Diabetes educators working in acute and community health services could use the model as a prompt to discuss perceived barriers with clients. The model could also be incorporated into clinical pathways or care plans, with barriers and goals clearly documented to enhance continuity of care. There are a number of valid and reliable barriers risk assessment tools such as the *Barriers to Health Promotion Activities among Disabled Persons* scale (Becker et al 1991; Stuifbergen and Becker 1994) and the Exercise Benefits and Barriers scale (Sechrist et al 1987). While these assessment tools are commonly used in barriers research, they could readily be applied in clinical practice to facilitate the process of identifying and addressing perceived personal, social and evironmental barriers to healthy lifestyle behaviour.

Under the current national framework for diabetes education (Eigenmann and Colagiuri 2007) physical activity and appropriate eating are currently subsumed under the *self management* domain along with practical skills, medication taking and problem solving skills. Given the evidence that women with type 2 diabetes, and no doubt other individuals, face significant barriers to healthy lifestyle activities including healthy eating and increasing physical activity it is argued that policy documents and frameworks for diabetes education could be improved by the addition of the health promotion concept of perceived barriers. Further, in the national framework lifestyle risk factor reduction in general could be better emphasised and include smoking and alcohol in addition to physical activity and appropriate eating.

CONCLUSION

At a global and national level, type 2 diabetes poses a considerable and growing challenge placing a significant burden on the individual, community and health systems. Lifestyle risk factor reduction is an important component of diabetes education that aims to improve diabetes control and reduce short and long term complications such as heart disease and renal failure. This paper has highlighted how the health promotion concept of 'perceived barriers' is a strong predictor of healthy lifestyle behaviour in women. Despite this, current frameworks for diabetes education do not include the concept of perceived barriers in relation to risk factor reduction. The 'Lifestyle risk factor modification and perceived barriers model' described could potentially enhance identification and goal setting in clinical practice to reduce an individual's perceived barriers and promote healthy lifestyle behaviours. While further research is needed to establish the efficacy of this model, it may provide an innovative contribution to lifestyle risk factor reduction in type 2 diabetes.

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