

## FROM THE EDITOR – Dr Jackie Jones RN PhD

### PRACTICE DEVELOPMENT AND THE ROLE OF CLINICAL LEADERS

In contemplating the challenges presented to nurses within a hospital environment I have recently had cause to reflect on how best to effect change and support clinical curiosity through practice development. Many nurses will be familiar with the term practice development others may not. The RCN UK website suggests practice development is ‘a term used to describe activity designed to help you approach your work in ways that provides care that patients feel is right for them, by helping you to:

- offer better choices for patients;
- provide evidence based and patient centred care;
- challenge and reflect on the care you provide;
- recognise and overcome obstacles that limit your ability to deliver best care;
- sustain yourself and your team to continue with learning and positive change;
- demonstrate the impact you have on practice; and
- influence, shape and respond to local policy’ (RCN 2006).

It is an ongoing process of improvement. It is clear that we now have a growing understanding of the organisational complexities that influence, and are often the impetus for, change. We are also aware policy influences can dictate or block the direction change can take. As with many things related to health all are interdependent and dynamic. Practice development can not only have direct impact on care provided but also organisational developments and strategic planning (McCormack 1999), so influence and direction can become circular. Sustaining practice changes then is also a major challenge.

Wilson and McCormack (2006) identify that there are many practice development methodologies one could use but conclude by suggesting that one asks for each situation, ‘What works, for whom does it work and in what circumstances does it work?’ There are many layers of practice development within the context of an evidence based practice framework but how can an organisation participate in ongoing practice development when people, who are the pulse of that organisation, conceptualise themselves, as I recently encountered, as ‘housewives of health’? It seems the nurses meant by this phrase that they were ‘all things to all people’. I believe that, as we all do, nurses constantly need to deconstruct and reconstruct their view of who they are, what they do and what they value. Nurses are, at times, struggling against the flow of change, with economic and now increasingly patient

safety related drivers. However, the Australian Nursing and Midwifery Council (2006) new standard 3.2, directly lays the expectation of change at nurses’ doorstep. Under the domain of critical thinking and analysis a registered nurse ‘uses the best available evidence, nursing expertise and respect for the values and beliefs, of individuals/groups in the provision of nursing care (ANMC 2006). That is, nurses are expected to actively use evidence, for example, to promote change.

A way forward for contemporary practice development is recognition that nurses are ‘leaders of care at the frontline’ (LPC 2006); clinical leaders who are already driving practice development from the ground up. Do we as nurses even recognise clinical leadership at the forefront of care on a daily basis? Who is the nurse who thinks laterally around a problem to find a solution; the nurse who chases and chases a solution until it can happen? Do we give them credit and support? Daily leaders of care are our ‘clinical leaders’ and are best placed to explore and question the space(s) with, in and between which health service delivery meets the consumer in need of that service.

As McCormack et al (1999) argue, practice development is not just ‘about changing a particular intervention but necessitates a focus on changing the culture and context in which care is delivered (p.256)’. Clinical leaders live and shape that reality of care provision. Such leaders also need to influence and drive policy and structural changes that either support or get in the way of leading care practices. Much has been written about leadership in contemporary literature but little has focused on the notion of clinical leaders as those who lead care on a daily basis in non-managerial positions.

Innovation provides fresh energy for practice and fresh practice for patients. It takes greater effort, energy and momentum beyond merely knowing and understanding research to get it into practice. In terms of knowledge transfer, ‘passive dissemination alone is not effective in increasing the uptake of knowledge and influencing clinician behaviour’ (Thompson et al 2006, p.696). Thompson et al argue there are various bridges, however implemented, ‘to improve access to timely, relevant research knowledge in order to facilitate its uptake to change practice and improve decision making’ (p.698). These are opinion leaders, champions, facilitators, knowledge brokers or change agents who undertake an extension of the role of everyday clinical leaders depending on need.

In my view practice development is also innovation in practice knowledge and here at AJAN we aim to make a

difference by contributing to informing and improving practice. The work of AJAN is to promote research evidence and practice development through scholarly critique, development of ideas and evidence based practice. I hope we contribute also to supporting nurse leaders at the coal face to be able to undertake practice development.

The guest editorial with Professor Mary Courtney highlights how journals are being measured for quality within the context of a Research Quality Framework for universities and places in a context of nursing practice. The first two research papers focus on questions of clinical placement. The Henderson study investigated the impact of a collaborative clinical education model on students' perception of the psycho-social learning environment. Unlike other models a ward staff member is paid by the university to be 'off-line' from a clinical workload to supervise students and can positively enhance capacity for student learning during their clinical practicum. The Abbey et al paper situates clinical placement within aged care to identify which elements of the clinical placement experience need to be challenged and/or changed as part of raising student understanding of gerontology as a demanding specialty and residential aged care as a rewarding career.

Chia draws attention to the practice of kangaroo care in neonatal ICU and found that whilst neonatal nurses strongly support this practice, notable constraints were heavy staff workloads, insufficient education, lack of organisational support and the absence of clear protocols, especially for low birth weight infants. Bost and Wallis's research describes a randomised controlled trial to investigate the effectiveness of a 15 minute back massage therapy in reducing physiological and psychological indicators of stress in nurses employed in an acute care hospital. The results of this study suggest that 'massage therapy is a beneficial tool for the health of nurses as it

may reduce psychological stress levels'. Bost and Wallis also argue for more 'large studies [to] be conducted to measure the symptoms of stress rather than the physiological signs of stress in nurses'.

The next two papers focus on models of care. Johnson et al report on hospital in the home (HITH) management following autologous haematological stem cell transplantation for patients with multiple myeloma or lymphoma. Their preliminary experience suggests that with adequate infrastructure support and rigorous patient selection this model of care is both safe and feasible. In light of the increasing need to attract and retain staff Fowler et al report on the development and trial of a nursing model of care and associated framework to investigate the impact of nursing staff mix on patient outcomes and job satisfaction for nurses.

Stewart et al's paper provides an overview of the current Fiji Health Sector Improvement Program, with a particular focus on the preparation of nurse leaders. It describes collaborative strategies being undertaken by the nurse leaders of Fiji to meet the challenge of leading a reform process.

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## GUEST EDITORIAL – Professor Mary Courtney, Director of Research, School of Nursing, Queensland University of Technology, Brisbane, Australia and Dr Jackie Jones Editor AJAN, Australia

### IMPACT FEVER: WHAT IS IT ALL ABOUT?

At the last Editorial Advisory Board meeting of the Australian Journal of Advanced Nursing, Dr Jackie Jones, Editor of AJAN, reported on the progress being made toward AJAN being included in the rankings prepared by the Institute for Scientific Information (ISI). There are two major editions of the ISI, the Social Science Edition and the Science Edition. Journals listed on the ISI database are ranked by a range of quantitative measures including the number of articles appearing in the journal, the number of citations to journals and by a simple quantitative measure called the impact factor.

The impact factor is simply a quantitative measure of the journal's performance and is the average number of times articles from a journal published in the past two years have been cited in the current year. When interpreting the impact factor, it is generally understood that the higher the impact factor, the higher the quality of the journal.

Currently, of the 1712 scientific journals listed in Social Science Edition database of ISI, only 32 journals are ranked under the nursing category. Similarly, in the Science Edition database, of the 5120 journals ranked only 33 appear under the nursing category. When examining the range of impact factors across these databases nursing journals tend to be ranked quite low.

Why is this so? Does it mean that nursing journals are of less quality than medical journals? Because nursing journals' impact factor tends to be on the low side should we be concerned? Also, why are so few nursing journals listed by the ISI for ranking when there are potentially over 500 nursing journals listed by CINAHL? Before answering these questions we need to understand a little more about how impact factors are calculated, who uses them, why they have grown in popularity and what purpose they serve.

#### How to calculate an impact factor (IF)

The ISI maintains a database of thousands of journals and calculates an impact factor for each journal that is ranked. The impact factor calculation consists of a ratio of two key elements. The denominator is the total number of 'citable' articles published in a specific journal over a 2 year period. The numerator is the total number of citations in the current year to any article published in this journal during that same 2 year period.

For example, in calculating the impact factors for two different journals, Journal AAA and Journal CCC, in the year 2006 let's say the following data is available:

	Journal AAA		Journal CCC	
	Citations	Citable Articles	Citations	Citable Articles
2005	1000	50	200	50
2004	2000	45	100	45

The impact factor is computed using the following formula:

$$\text{IF} = \frac{\text{All citations to articles in Journal during 2005 + 2004}}{\text{All 'citable' articles in Journal during 2005 + 2004}}$$

$$\text{IF (AAA)} = (1000+2000) / (50+45) = 3000/95 = 31.57$$

$$\text{IF (CCC)} = (200+100) / (50+45) = 300/95 = 3.157$$

In this example both journals produced the same number of articles over the two year period (95). However, Journal AAA received 3000 citations whereas Journal CCC had only 300 citations. Therefore, the number of times that articles were cited in other journal articles raised the impact fact of the journal where the article first appeared.

#### Who uses impact factors?

With the expansion of the internet and personal computers more people now have easy access to the ISI database and are able to calculate the number of citations for individual researchers and impact factors for individual journals. Therefore, impact factors have grown in popularity as they are a simple objective measure that can serve many purposes. For example:

- librarians use them to decide which journals to purchase and which subscriptions to cancel;
- editors and publishers use them to chart the growth of citations in relation to their competitor;
- researchers use them to gauge where their research papers might obtain the most attention;
- university recruitment and promotion committees use them to gauge the quality of the research papers published by future and current employees;
- government agencies use them to gauge the quality of research papers published;
- competitive funding bodies use them to gauge the quality of journal papers previously published by potential grant recipients.

## Impact factor rankings for nursing journals – are they really low?

At first glance, it appears individual nursing journals have very low impact factors compared to other journals. For example, nursing's highest ranked journal is *Birth* with an impact factor of 1.9, whereas the highest ranking medical journal *New England Journal of Medicine* has an impact factor of 32. When reviewing the Journal Citation Reports (JCR) of ISI databases, it is possible to create summary lists of categories of journals which can be ranked by total citations, median impact factors, number of journals and number of articles, etc. The median impact factor is the bibliometric of interest when examining these reports. Previously, when reviewing impact factors for individual journals it appeared that impact factors for nursing journals were quite low. However, when examining summarised median impact factors for groups of journals (categories) a different picture emerges.

In the 2004 JCR Science Edition the median impact factor of the Medicine, General and Internal category was 0.835 compared to 0.689 for the nursing journal category. By grouping the journals together into categories and calculating the median impact factor, the JCR report demonstrates there is not so much difference between the median impact factor. Why is this so? The number of journals that make up categories and the number of articles that subsequently appear in these journals can influence the calculations of these ratios. For example there are 103 journals in the Medicine, General and Internal category compared to 33 in the nursing category and within the 12695 Medicine, General and Internal articles in that category there were some 658118 citations compared to 1959 journals and 21007 citations in the nursing category.

## Why are so few nursing journals listed in the ISI and does this mean they are of less quality?

Returning to the question of why are so few nursing journals listed in the ISI, it seems nursing journals have been overlooked in the past. Many thousands of journals are waiting to be evaluated by ISI (which is a private company) and yet as ISI state, 'librarians are their true customers' (Freda 2006, p.58) and that 'no one had ever questioned their coverage of nursing journals previously' (p.58) despite the fact that there are '11 million practicing nurses worldwide'. The ISI have, according to Freda (2006, p.59) from the International Academy of Nursing Editors (INANE), 'decided to add an additional 23 nursing journals in 2006' following extensive lobbying by Freda on behalf of nursing journals. Even this inclusion cannot, at this stage, possibly represent the scope and extent of nursing research worldwide.

However, shouldn't the target audience be one of practice, research, education, and policy not just the degree to which one scholar communicates and is communicated about by another scholar? Gottlieb and Clarke (2005, p.2) quite rightly point out that we may 'unwittingly censor ideas and approaches because the priorities and emphases of most biomedical journals may be very different from those of nursing journals'. Limiting the choice of nursing journals with an impact factor makes it even more difficult for nursing research to make it into press regardless of the quality of that work. Practice is then poorer as a result.

Furthermore, the calculation of impact factor was never intended to be used as a measure of quality of an individual researcher's work. Rather, the impact factor is attached to the journal where the researcher's work appears. Like medical colleagues (Abbasi 2004) and nurses overseas (Freda 2006) nurses in Australia are being instructed to publish in journals with the highest impact factors. As Editor-in-Chief Melby (2005, p.219) strongly argues, IF should not be used to measure a nurse academics' research impact. Amongst other things IFs are sensitive to the type of articles a journal publishes so that a literature review which forms the basis of a researchers argument may then be frequently cited thus influencing the IF (Gottlieb and Clarke 2005; Amin and Mabe 2000) and its ranking. Therefore the jury remains out on the impact factor debate. We would say that it is impossible to compare the scholarship and relevance of one piece of work to another that is not included in the same ranking exercise. *AJAN* chose to participate in the impact factor evaluation process in a mindful and considered manner. The question for clinicians to ask is does this article have potential to make a difference to my practice context and is it a rigorous study worthy of further exploration and discussion?

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# PRE-TEST AND POST-TEST EVALUATION OF STUDENTS' PERCEPTIONS OF A COLLABORATIVE CLINICAL EDUCATION MODEL ON THE LEARNING ENVIRONMENT

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## ABSTRACT

### **Objective:**

This study investigated the impact of a collaborative clinical education model on students' perception of the psycho-social learning environment.

### **Design:**

A pre-test and post-test quasi experimental design.

### **Setting:**

A tertiary referral centre.

### **Subjects:**

Second and third year undergraduate nursing students were asked to rate their perceptions of the psycho-social learning environment at the completion of the clinical practicum.

### **Tool:**

The tool used to measure psycho-social perceptions of the clinical learning environment was the Clinical Learning Environment Inventory previously validated in Australian health care contexts.

### **Intervention:**

A collaborative arrangement with the university and ward staff where eight students are placed on a ward and a ward staff member is paid by the university to be 'off-line' from a clinical workload to supervise the students. This is in contrast to the standard facilitation model where students are placed with registered nurses in different localities under the supervision of a 'roving' registered nurse paid by the university.

### **Results:**

No significant differences were found in pre-test mean scores when comparing wards. Significant differences in post-test scores for the intervention group were identified in the sub scales of Student Involvement, Satisfaction, Personalisation and Task Orientation.

### **Conclusions:**

The adoption of a collaborative clinical education model where students are integrated into the ward team and the team is responsible for student learning can positively enhance capacity for student learning during their clinical practicum.

## INTRODUCTION

Integration of theory into practice is an important component of undergraduate education that is ideally maximized through effective clinical placements (Morgan 1991). There are however considerable complexities and considerations of placing students in tertiary organisations to progress learning and ensure the adequate preparation of the undergraduate. While the environment is recognised as a key success factor in effective clinical learning it is multifaceted (Dunn and Hansford 1997). The literature recognises that a supportive environment for students and opportunities for students to practise activities are important in continuous learning (Pearcey and Elliott 2004). Collaboration between academic and health service sectors is constantly being strengthened to enhance the support for student learning (McKenna and Wellard 2004; Richardson et al 2000; Gassner et al 1999; Davies et al 1999).

## LITERATURE REVIEW

### Collaboration in clinical placement models

The basis of collaboration that is presently being progressed is to foster greater links between the health service sector and tertiary institutions, to ensure students have access to quality clinical experiences. Many approaches and models based on collaboration and partnership have been developed in an attempt to maximize the benefits of student learning in a cost effective manner agreeable to both the tertiary institution and health service provider, often an acute health care facility (Davies et al 1999; Edgecombe et al 1999). The advantage of collaboration is the creation of an environment conducive to student learning.

### The psycho-social learning environment

A key aspect of collaboration is enhancing psycho-social aspects of the clinical environment; a major consideration in student learning. Students learn in environments where they are nurtured (Davey 2003). They respond when staff are open in their approach and they can easily communicate with them because they are ostensibly largely dependant on staff in the clinical learning situation (Lewis 1998). Clinicians need to create this type of environment if they are to be effective teachers (Clark et al 2004). Furthermore, student learning is enhanced when staff care about them (Redmond and Sorrell 1996).

Support for students is best demonstrated through effective co-operation between students and staff members, becoming part of the team, and a good atmosphere (Papp et al 2003). Specific behaviours that can successfully contribute to such a positive climate include: providing opportunities for students to be responsible for their actions; creating situations for them to practice tasks in a safe environment; and constructively supervising their work, including the provision of feedback (Lofmark and Wirkblad 2001).

### The clinical education unit

The Clinical Education Unit (CEU) is a partnership arrangement whereby the students undertaking their undergraduate education join the 'team' of nurses in the ward providing care to clients (Richardson et al 2000). The features of the CEU have been informed through current literature on successful practices that enhance the psycho-social features of the clinical learning (Pearcey and Elliott 2004; Papp et al 2003; Lofmark and Wirkblad 2001).

The first initiative of the CEU was to incorporate the student as part of the team. This is achieved by eight students being placed in one ward area and a staff member from that area funded by the university being responsible for supervision of those students. Students are orientated and supervised by clinically current staff members (Baird et al 1994). All nursing staff facilitate student learning opportunities through their respective roles and responsibilities during the student placement.

This can often promote ownership of students and thereby facilitate more appropriate and student centered learning experiences (Melander and Roberts 1994). The specific rostering and shifts worked by the students are negotiated with the particular ward adopting this model.

Students are 'buddied' with registered nurses carrying a clinical workload (Clark and Henderson 2005). The students are perceived as part of the team and, where possible, these students return on their next clinical practicum. Students' learning is guided and assessed by one registered nurse, the supervisor of clinical learning, from the designated ward area, who is funded by the tertiary institution to be 'off-lined' from a clinical workload. The supervisor of clinical learning has overall day-to-day responsibility for the students (Queensland Health Guidelines 2001). This position has been identified as successful in the promotion of a learning culture (Clarke, Gibb and Ramprogus 2003).

### Evaluation of psycho-social considerations of collaboration

While many collaborative initiatives have been evaluated these are often descriptive in nature and unit specific (Davies et al 1999; Gonda et al 1999). This present study seeks to evaluate the effect of the CEU collaborative model when compared with the standard facilitation model, where the supervisor of clinical education 'roves' around a number of areas which he/she may or may not be familiar. As the impact of effective collaboration is ideally on the psycho-social aspects of the clinical learning environment, this was the measure used to determine differences between the CEU and standard facilitation model.

## AIM

To evaluate the impact of Clinical Education Units on students' perception of psycho-social learning environments.

## METHOD

A pre-test and post-test quasi experimental design was used to assess psycho-social attributes inherent in the clinical learning environment. The pre-test was undertaken after the first clinical practicum for the year when all students in the health facility were supervised under the standard facilitation model. The standard facilitation model involves students partnering with a registered nurse on a ward and this relationship is overseen by one roving supervisor for each eight students and paid by the university. The post-test was undertaken after the second clinical practicum in the same year. During the second clinical practicum students in the control group were supervised under the standard facilitation model and the intervention group trialed the Clinical Education Unit (CEU) model. The same group of wards were used in the pre-test and post-tests.

## Ethical considerations

Feedback was collected as part of routine quality assurance that is required when new initiatives are introduced into the organisation. The collection of information conformed to NHMRC advice (2003): anonymity was maintained; there was no infringement of privacy; and no burden was imposed on staff or patients as there was no departure from routine practice. The research design did not meet the criteria for requiring ethical approval from the hospital ethics committee, rather approval was granted at a local level. Students were asked to provide feedback about their clinical environment through completion of the survey. No coercion for participation took place.

## Subjects

Participants were second or third year undergraduate students studying a Bachelor of Nursing at a University in South East Queensland undertaking their clinical practicum at a tertiary referral facility during 2003. For the purposes of the following analyses, a full sample of 370 respondents was included. This sample consisted of 248 respondents who had been placed in 15 wards where there was no change to the clinical placement utilised, and 122 respondents who had been placed in five wards that had undergone a change in clinical placement model. Within the five wards where there had been a change in the clinical placement model employed, 39 respondents were categorised as undertaking clinical placement under the standard facilitation model (prior to the changed practice of supervision) and 83 respondents had undertaken clinical placement in the CEU model (model for changed practice).

## Tool

The Clinical Learning Environment Inventory (CLEI) was specifically developed to assist researchers to assess student nurses' perception of the psycho-social aspects of the clinical learning environment (Chan 2001; Chan 2003). This tool acknowledges that learning takes place in a dynamic environment where patient care is nurses' core business. The tool identifies a number of factors, namely, individualisation, innovation, involvement, personalisation and task orientation that student nurses identified as highly desirable if their learning was to be effectively facilitated (Chan 2003). The scale descriptors are as follows:

Individualisation	Extent to which students are allowed to make decisions and are treated differentially according to ability or interest
Innovation	Extent to which clinical teacher/clinician plans new, interesting and productive ward experiences, teaching techniques, learning activities and patient allocation
Involvement	Extent to which students participate actively and attentively in hospital ward activities
Personalisation	Emphasis on opportunities for individual student to interact with clinical teacher/clinician and on concern for student's personal welfare
Task orientation	Extent to which ward activities are clear and well organised

## Scoring of items

The items have been scored differently to the method used by Chan (2001, 2002, 2003) where item non-response was given a score of 3 on a scale of one to five (1 = strongly disagree, 2 = disagree, 3 = no response, 4 = agree, 5 = strongly agree). This process has not been applied in the following analyses due to concerns regarding the validity of assigning non-response a valid value within an overall score. It is not necessarily appropriate to assume that non-response is due to the respondent's desire to answer an item with a response of 'unsure' – respondents may have missed the item, may object to some component of the item or may not have responded due to a range of other reasons. Accordingly, each variable has been scored using a four point scale where 1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree. Where non-response has occurred, the item was excluded.

## Scales

As small variations were made in the CLEI the internal reliability of all subscales were calculated for the revised survey.

### Individualisation

The Individualisation scale is comprised of seven items based on the work of Chan (2001, 2002, 2003). The Individualisation scale was found to be internally reliable (Cronbach alpha coefficient of 0.68).

### Student involvement

Student Involvement was measured using a scale of six of the seven items included in the original CLEI scale. One item was excluded from the scale due to concerns regarding its suitability to the study sample utilised. The Cronbach alpha coefficient for this modified scale was 0.62, supporting the assertion that the scale has retained its internal reliability with the deletion of one of the seven items originally included.

### Satisfaction

The Satisfaction scale included in the study consisted of the seven items detailed by Chan in the Clinical Learning Environment Inventory (2001, 2002, 2003). A Cronbach alpha coefficient of 0.88 was achieved for this scale, demonstrating a high level of internal consistency.

### Innovation

Innovation was measured using the seven items derived directly from the Clinical Learning Environment Inventory (Chan 2001, 2002, 2003). The internal reliability of the Innovation scale was found to be maintained (Cronbach alpha coefficient of 0.61).

### Personalisation

The personalisation scale developed by Chan (2001, 2002, 2003) was modified for the purposes of this study. Only six items from the original seven item scale were

**Table 1: CLEI scale scores pre-test – comparison of facilitation scores in control wards and wards that underwent change**

Ward	Individualisation	Student involvement	Satisfaction	Innovation	Personalisation	Task orientation
No change	19.98	18.55	23.29	19.72	19.86	21.58
Change	19.46	18.23	24.16	20.42	19.58	22.23
p-value	00.319	00.587	00.194	00.134	00.586	00.205

**Table 2: CLEI scale scores post-test – comparison of facilitation scores in control wards and CEU scores for wards that underwent change**

Ward	Individualisation	Student involvement	Satisfaction	Innovation	Personalisation	Task orientation
Facilitation	20.55	18.65	23.37	19.81	20.16	21.51
CEU	20.84	19.46	24.65	20.51	21.15	22.57
p-value	00.517	00.037*	00.027*	00.116	00.019*	00.012*

\* denotes significance at the 0.05 level

included in the study due to questions relating to the suitability of the seventh item in the selected sample. Internal consistency of the modified scale was retained, with a Cronbach alpha coefficient of 0.68 obtained for this scale.

### **Task orientation**

The task orientation scale used in analysis included seven items derived from the Clinical Learning Environment Inventory (Chan 2001, 2002, 2003). The internal reliability of this scale was also found to be maintained (Cronbach alpha coefficient of 0.72).

Significant differences in post-test scores for the intervention group were identified in the scales of student involvement, satisfaction, personalisation and task orientation. It must be noted that a relatively small sample was available for the CEU group.

### **Individualisation**

In the post-test score the CEU model yielded a higher score than the standard facilitation model, with scores of 20.84 for the CEU model and 20.55 for the Facilitation model (table 2). These scores were not significantly different. Of interest is that all the post-test scores were higher across all ward areas for individualisation suggesting the presence of other changes that impacted on the whole organisation.

### **Student involvement**

The post-test score for the group of students undertaking clinical placement within the standard facilitation model was 18.65, which was significantly less than the post-test score for the CEU model of 19.46 (table 2). Student involvement scores were found to have increased significantly in the CEUs ( $p=0.037$ ).

### **Satisfaction**

The post-test identified that there was a significant difference in satisfaction between the wards utilising the

standard facilitation model and the CEU model ( $p=0.027$ ). This is evident when comparing the score of 23.37 for wards utilising the standard facilitation model and a score of 24.65 for wards in which the CEU model was employed (table 2).

### **Innovation**

There were no significant differences reported in innovation scores throughout the duration of the study, that is, no difference between the wards utilising the standard facilitation model or after implementation of the CEU.

### **Personalisation**

Personalisation scale scores increased in all wards throughout the study. The CEUs rated a higher level in the post-test. The post-test score in the CEU, 21.15, was significantly different than 20.16 found in wards utilising the standard facilitation model ( $p=0.019$ ) (table 2).

### **Task orientation**

In terms of the assessment of task orientation using the CLEI scale, the variance before and after implementation of the CEU model was small. However, the post-test difference between wards where there was no change in model, and wards where the CEU model had been implemented was statistically significant ( $p=0.012$ ), with respective scores of 21.51 and 22.57 (table 2).

## **DISCUSSION**

Analysis of pre-test and post-test scores identified a statistically significant increase in four of the areas measuring psycho-social factors in the wards that trialed the CEU model. An increase in student involvement, personalisation and task orientation suggests that students perceived that their specific learning needs, that is, unique needs were addressed and catered for to a greater degree during their clinical placement in the CEUs. Student involvement is described as the 'extent to which students



participate actively and attentively in hospital ward activities' (Chan 2001, p.629). Personalisation is described as an 'emphasis on opportunities for individual students to interact with clinicians and concern for student's welfare' (Chan 2001, p.629).

These improved student involvement, personalisation and task orientation scores suggest that students perceived that the experiences in the CEU were tailored to their specific learning needs and circumstances. Accordingly students reported greater engagement during the practicum. Under such situations these factors possibly directly relate to each other. These factors combined indicate an enhanced clinical learning environment that facilitates student learning as the student feels comfortable and nurtured within the environment (Davey 2003).

This finding is commensurate with the intent of the CEU, that is, the student is recognised as part of the team. This differs from the standard facilitation model where students are 'placed' or 'buddied' with an RN who then assists student learning with the assistance of a 'roving' supervisor. The value of the student being incorporated into the team and the team being aware of their learning needs is central to learning in the clinical context (Papp et al 2003, Lofmark and Wikblad 2001).

Evidence that the wards that adopted the CEU may be more receptive to the placement of students is the analysis of the satisfaction scale. While satisfaction was significantly different at the post-test, it was also higher in the wards electing to pilot the CEU model as shown in table 1.

## LIMITATIONS

As discussed, the wards that elected to adopt the new model were possibly more desirous of student placements as satisfaction was reasonably high in these wards in the pre-test (yet not significantly different from the control wards). Further to this, because of the discussion that was required prior to the implementation of the new model the intervention wards had a heightened awareness of the prospective students and their accompanying expectations. Nonetheless, the intervention wards had no further education.

Although the total sample size was reasonable (n=370) some cell sizes were still small. In particular, respondent numbers were small prior to implementation of change in those wards that adopted the CEU model. Due to some small cell sizes these results are exploratory in nature and warrant further investigation.

## RECOMMENDATIONS

These findings suggest that collaboration between tertiary institutions and the health service sector, in particular, with specific individual wards or units to identify local strategies that will assist staff to effectively integrate students into their immediate environment could be instrumental in enhancing the clinical learning of

students. Strategies that are developed in the local context with the consent of ward staff are more readily able to be sustained as staff are in agreement about how the students can best be accommodated. Students are therefore less likely to feel that they are an 'imposition', but rather, valued as a team member in the environment.

## CONCLUSION

These preliminary findings suggest that creating a climate of interest and motivation in all staff responsible for student learning is possibly a strong factor in students' perception of the psycho-social learning as four of the six subscales were found to be significantly different in the post-test analysis. It would seem that the CEU is an effective strategy to facilitate psycho-social aspects of student learning however it must be realized that high levels of satisfaction were already in existence prior to the model. It may be that this model requires a particular interest by staff members prior to its implementation.

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# CLINICAL PLACEMENTS IN RESIDENTIAL AGED CARE FACILITIES: THE IMPACT ON NURSING STUDENTS' PERCEPTION OF AGED CARE AND THE EFFECT ON CAREER PLANS

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## ABSTRACT

### **Objectives:**

Undergraduate nursing students have often found clinical placements in aged care unsatisfactory and/or unsettling, dissuading them from considering aged care as an employment option on graduation. This study asked which elements of the clinical placement experience produced that outcome; and what changes could yield more positive outcomes.

### **Design:**

A descriptive qualitative pilot study was carried out in late 2003. A combination of nominal groups and semi-structured interviews was used with students and experienced nurses to identify commonalities and variations in issues nominated as important and in the views expressed on those issues. Transcripts were independently analysed by two experienced investigators. Themes identified were discussed among the researchers.

### **Subjects:**

Fourteen volunteer undergraduate nursing students, all of whom had completed clinical placements in residential care and some of whom had prior experience in such facilities, participated in the nominal groups. Twelve registered nurses who had acted as clinical teachers in aged care facilities were interviewed.

### **Results:**

Perceived issues included: unexamined assumptions about nursing's core skills; lack of pre-placement orientation to the residential care environment; the

appeal of and apprehension aroused by autonomous practice; and status, income and career progression considerations.

### **Conclusions:**

Analysis of the sometimes ambivalent and conflicting views expressed pointed to possible changes, all within the domain of training and employing institutions, capable of bringing submerged issues to the surface for examination and resolution as part of raising student understanding of gerontology as a demanding specialty and residential care as a rewarding career.

## INTRODUCTION

Few students enter or complete a nursing course intending to work in aged care on graduation (Fagerberg and Ekman 1997). Gerontological nursing ranks last or nearly last among preferred specialties (Moyle 2003; Happell and Brooker 2001). Reasons given include factors in the nursing education process, such as inadequate or integrated gerontological content, lack of qualified teachers, and the quality of clinical placements (Marsland and Hickey 2003; Moyle 2003; Happell 2002; Australian Department of Health and Ageing 2002). The literature shows that clinical placements with well and sick elderly occur in a range of settings, have a variety of aims and are used at all stages of nursing programs (Storey and Adams 2002), sometimes as part of a course in gerontological nursing (Aday and Campbell 1995); occasionally as part of a psychiatric/mental health nursing placement (Rowland and Shoemaker 1995); and most often as a vehicle for teaching what is commonly termed 'basic nursing care' (de la Rue 2003).

Placements designed as part of a course in gerontology appear to have the most positive impact on students' perceptions of elder care (Aday and Campbell 1995). Those concerned with the mastery of 'basic nursing skills' have been found to discourage students from working with the elderly (Ford and McCormack 2000). However, providing a variety of clinical experiences with the elderly and grading those experiences, starting with the well elderly and finishing with the care of the sick and critically ill, seems to promote interest in working with the aged (Haight et al 1994; Spier and Yurick 1992).

A study that examined the impact of the clinical teacher (Fagerberg et al 2000) found that few in aged care were seen as able to inspire interest in the area. Furthermore, students perceived their clinical teachers as poor leaders lacking adequate medical knowledge. Students have also been critical of what they perceive as the routinisation of care in nursing homes and the ways this undermines standards and dictates styles of care (Lumley et al 2000).

Our study sampled the opinions of undergraduate nursing students and their clinical supervisors on the impact of clinical teachers, long-term care staff and the settings used, seeking any recurring themes that might indicate how these factors in Australian long-term care settings can incline students toward or against working in aged care on graduation. With recruitment and retention of registered nurses (RNs) in long term aged care so difficult, the formation of early attitudes to the sector demands attention. The research, a pilot study for a larger mixed-method investigation now underway, was begun in 2003; the first practical initiative of an industry – university group comprising senior RNs, academics and facility managers whose concerns include staffing, education and care standards.

## METHODOLOGY AND DESIGN

Descriptive qualitative methodology was chosen to capture the subtleties and inconsistencies anticipated in the phenomena being studied and to generate insights for later exploration via practice and research. Wilson's (1989 pp.457-462) approach to qualitative analysis was adapted, attempting to:

- explore and describe the phenomenon under study;
- uncover and make sense of relations and linkages;
- put these new perspectives back into the context of others' perceptions; and
- extend the evolving theory to permit subsequent testing.

Two groups – undergraduate nursing students who had completed clinical placements and RNs who had been involved as clinical teachers in those places – were recruited after a university ethics committee gave approval. A second year baccalaureate cohort (n=367)

yielded 49 eligible students to whom invitations were sent. Fourteen volunteered: ten females and four males; aged from 20-57 years; 28 per cent of those eligible; about half with some prior experience in aged care. Their placements had been at six different metropolitan aged care facilities, providing a useful spread of sites. Twelve clinical teachers matching the inclusion criterion volunteered in response to circulars.

## Data collection

The fourteen students were formed into two nominal groups (Lloyd-Jones et al 1999), each facilitated by a researcher not involved in assessing the students. Three questions were asked of the students initially. Considering your aged care placement:

1. What did not work well?
2. What worked well?
3. What would influence your decision to work or not work in aged care on graduation?

Questions one and two were also used to provide an initial focus for the semi-structured interviews lasting 30-60 minutes with the RNs who acted as clinical teachers. The RNs were also asked what factors they believed influenced students in deciding whether or not to work in aged care on graduation.

The students' sessions closed with a fourth question:

4. Would you work in aged care on graduation?

The nominal groups' prioritised results were recorded and transcripts of the RN interviews were produced. Both data sets were analysed independently by two members of the research team to identify themes and illustrative quotes. Their analyses and the raw data were then discussed by the group to generate accurate thematic representations of the RN interviews and the students' nominal group outcomes. Recurring topics were grouped and then more closely examined to investigate the connections among them prior to locating and interpreting them in the light of the known context shared by the participants.

## FINDINGS AND DISCUSSION

Reactions to the questions were more complex, perhaps more contradictory, than anticipated. The findings that resulted from an extended analysis of the typescripts are presented as a series of six colloquially expressed themes – some as statements and some as questions – discerned by the researchers in the divergent and sometimes even diametrically opposed ways in which the same phenomena were seen from different vantage points. A subsequent report will examine differences within and between the student and RN groups.

The results replicate and confirm locally applicable findings from elsewhere; but they go further by pointing toward possible strategies for change, discussion of which

lies beyond this article's boundaries. Themes are illustrated briefly by samples of the discourse from which they emerged and the significance of each theme is discussed.

### **Theme 1. What exactly are 'basic nursing skills' and how much 'technical' care can be taught in an aged care setting?**

Aged care clinical placements were seen by all participants as providing opportunities to learn, practice and master what were commonly referred to as 'basic nursing skills':

*...useful prac for when you are exposed for the very first time to basic nursing practices eg. bathing, feeding, dressing.* (student)

Clinical teachers and some students elaborated on this theme by highlighting the potential such activities offered students to practice holistic nursing care:

*[you learned] personal skills – families, communication – the other side of nursing.* (student)

*...my role is to increase everybody's skill and knowledge...to understand what they are doing and why. Just bathing a patient, just putting them in the shower can go from just an awful yucky job with an awful old person to something that can be really caring, comforting, educational, in seeing a broader thing – making them look at anatomy and physiology and skin integrity and then just the psychological aspects.* (clinical teacher)

However, most of the students were concerned that the setting offered no opportunities to practice the more complex technical skills they tend to see as the core of modern nursing:

*It doesn't prepare us for acute nursing responsibilities ie. drips, arrests etc.*

A clinical teacher rebutted this. 'We've got things like gastrostomy tubes, PEG feeds going on all the time'. This approach deserves consideration, but ignores an underlying issue: the students' conception of what constitutes 'clinical knowledge'. Lumley et al (2000) argue that nursing's attempts to professionalise indirectly lead students to perceive technical interventions associated with surgery and technologised medicine as prestigious and those associated with holistic physical and psychosocial care as inferior. Contemporary media, especially popular television programs, reinforce these messages (Blundell 2005). One clinical teacher observed:

*...they see real nursing as what I would call a medical technician's job: ICU, CCU; that's where they see real nursing occurring.*

The constantly advancing technology in intensive care and general medical wards, and, in contrast, the normalisation movement in residential aged care facilities (RACFs), now distinguish these sites more sharply and in new ways from each other. For 40 years the trend in aged

care facilities has been to make what is increasingly an acute health care site look more and more like a domestic setting. Anything suggestive of clinical procedures or equipment or likely to be seen as embodying clinical knowledge is concealed or disguised as an object resembling 'normal' home furnishing. Students new to the setting are as likely to be deceived about the clinical dimensions of this site as the residents and their visitors are meant to be. Such issues – the complex assumptions implicit in various conceptions of 'basic nursing skills' and the impact of the 'normalisation' movement among others – need preparatory discussion and retrospective debriefing; but there was no provision for this.

### **Theme 2. Are students inevitably indifferent to or actively disliking residential aged care nursing; or just poorly prepared for it?**

Participants in this study were critical of the way in which aged care is currently taught and this is echoed in other Australian and overseas studies (Oberski et al 1999). Other studies have found that the curriculum is an important contributor to students' attitudes towards the elderly and hence, their desire or reluctance to work with them (Happell and Brooker 2001; Ford and McCormack 2000). Still others, relying on North American evidence, point to the lack of gerontological qualifications and experience among university staff as an influencing factor, to which must be added the difficulty in finding high quality placements (Australian Department of Health and Ageing 2002).

Concerns about current preparation for placements were expressed by students and clinical teachers. 'Before these students go into an aged care environment', said one RN, 'they should do at least one semester of a subject entitled 'gerontology'.

According to Mezey et al (1997), this lack is especially problematic when gerontological content is integrated into general nursing programs, blurring or diluting conditions and care needs peculiar to the ageing process. In part, the problem is that clinical teachers qualified in gerontic nursing and able to contribute to curriculum planning are in short supply (Australian Senate 2002; Shoemaker et al 1998). The physical and interpersonal environment of RACFs was also described as surprising and confronting by students. They commented on the smells, an apparent lack of caring by some staff and what was perceived as the poor quality and outdated style of the furnishings.

*poor environment, overcrowded, pervasive odour of stale urine and bowel motions – even through the drains in the staff area.*

*...it was emotionally hard to get used to it – you are dealing with yucky, horrible stuff all the time and [staff] all don't care.*

Encountering the 'dirty work' entailed in attending to naked bodies has been noted by previous authors (Lawler

1991) as a challenge for undergraduate nurses, both male and female. There is an additional need for students to be prepared for the 'body shock' that may occur when first confronted with a succession of very frail, damaged/disfigured, older bodies and minds.

### **Theme 3. The fear of being in charge but not in control.**

The students associated their residential aged care placement with the experience of powerlessness, of being constrained. Some speculated about the lack of influence on quality of care due to limited resources, both at the site and industry levels. Students referred to:

*financial constraints and other constraints – not as much room to move as in an acute setting. [Your suggestions] come up against a brick wall.*

Mention of the difficulties a young RN might face in dealing with long-serving care staff (Fagerberg et al 2000) was made by a number of the nominal group participants and some interviewees.

*Groups of staff may have worked in the area for so long that they run the place. (student)*

*...the AINs (assistants in nursing), if a new grad comes in, they tend to give them a hard time. (clinical teacher)*

*Aged care needs great change, as a junior nurse or a student you don't have that ability. As a more senior nurse... you would have more power. (student)*

It was worth noting that students also felt powerless in the face of the relentless advance of the ageing process:

*Inability to help patients 'get better' – emotionally draining, and against my motivation for becoming a nurse.*

This may indicate that the student, who was not alone in expressing this view, has absorbed a concept of nursing care limited to or dominated by the curative model, a shortfall that can be deliberately addressed.

### **Theme 4. A free hand, or no one to reach out to: the challenge of autonomy or the burden of being alone at the top?**

Stevens and Crouch (1998) argue that there are areas of nursing practice, which they term 'doctor-free' zones, where nursing can reduce its subservience to medicine and offer more in terms of knowledge and experience.

The clinical teachers highlighted the vital difference that can be made in aged care by registered nurses with a good understanding of the sector's practices and networks. They pointed out the autonomy enjoyed by, and the range of professional skills required of, RNs working in aged care. These included managing staff, involvement in documentation for funding, providing nursing care for residents, and counselling and support for staff, families and residents. One of the clinical teachers had found this liberating, a welcome challenge:

*I alone make all these decisions.*

However, due to the limitations on their placement experiences, some students had not perceived or understood this dimension of the RN's role in aged care:

*RNs spend most of their time writing.*

*I need to learn more about RNs' responsibilities rather than AINs' responsibilities.*

While experienced clinical teachers reported their own strong sense of satisfaction at being challenged to broaden and deepen their nursing knowledge to meet the demands of residential aged care, students were more likely to report a sense of vulnerability, deriving from a degree of autonomy they perceived as isolation. The nurse-led environment actually frightened a number of students (Fagerberg et al 2000) who would prefer to work with other similarly qualified nurses, with a senior nurse in charge and doctors constantly accessible.

Clinical teachers, noting this anxiety, concluded that new graduates do not have the skills to deal with the distinctive tasks associated with the RN's role in residential aged care:

*...they feel like they have been thrown in the deep end.*

The requirement for targeted preparation for aged care clinical placements and improved mentoring arrangements will be investigated in the larger study for which this has been a pilot.

### **Theme 5. Status concerns: Lack of respect for aged care vs. high status of acute care.**

Participants noted the lack of status and respect afforded aged care nursing, seeing it as implicit in the funding and resource difficulties besetting the sector:

*...because of money and funding [nurses in aged care] do feel forgotten. ...the equipment's not the same, it's very archaic, I did some urine tests with a group once and we had trouble finding the equipment to do it. (clinical teacher)*

Students knew that rates of pay are lower for nurses in aged care and felt aged care was seen as inferior by some nurse academics they had met during their studies:

*...I think the nursing profession as a whole needs to get behind them [aged care RNs]...making them feel that their work is appreciated. (clinical teacher)*

Students in this study were commonly paired with AINs during their aged care placement. The resulting lack of deliberate, controlled exposure to the RN role meant that students had no clear picture of the complexity of the registered nurse's role or the range of professional peer supports available. Involvement with, or at least exposure to, the decision making, care planning and assessment procedures undertaken by registered nurses in aged care, and the networks open to them is needed. This may help to illustrate that the role is more demanding and better

supported than the students are easily able to see. Clear statements from role models at university and clinical teachers in aged care settings would also communicate this aspect.

### **Theme 6. Career concerns: a stimulating and rapidly evolving area of independent nursing practice, or the choice for those who want a slower moving, less demanding nursing job later in their career?**

Concern about career paths was viewed as a major influence on the decision regarding working in aged care in the future. Students spoke of aged care being an end point in a career, without obvious pathways or support for a developing career in the area. Clinical teachers made a similar point:

*...the only students that I have ever known who have gone back to work in aged care have been those who have worked in aged care, and they like aged care. It's probably comfortable for them.* (clinical teacher)

Students also spoke of a lack of structured future education opportunities in the area and the high proportion of staff with low or no qualifications. Changes involving access to formal structured pathways, or graduate programs allowing new graduate nurses to specialise in aged care would also communicate the complexity and importance of this area of practice. The messages given by staff at university and in clinical settings are also vital in this area and the importance of aged care needs to be clearly emphasised to students. Role models who command respect because of their knowledge and enthusiasm for the field also need to be involved in the teaching of students. Such innovations might well dispel the impression that aged care nursing is a way-side stop on the road to retirement.

## **LIMITATIONS**

Participants for the study were not chosen randomly, but rather chose to accept a general invitation issued to eligible students and nurses to participate. The use of a convenience sample has the potential to introduce 'bias' through the inclusion of individuals who were either for or against the residential aged care setting. This risk was difficult to avoid, given the restricted size of the population from which the researchers could collect data and the resources available.

The small size of the samples of students and nurses constitutes another limitation. From a student cohort of 367, only 49 had undertaken an aged care placement, perhaps an instance of the broader problem this study sought to understand.

The study lacks a longitudinal dimension. All the student data came from one intake of nursing students; thus we are unable to escape any possible cohort effect. Similarly, we were unable to avoid any insights arising from the particular nursing homes in which the students had completed their placements. We cannot know to what

degree, or in what respects, the facilities where the placements were undertaken are representative of Australia's RACFs.

The clinical teachers' emphasis on the pre-existing attitudes and approaches of the students themselves as a determinant of their experience and how they view and report it probably revealed another limitation. Questions to the nominal groups should have included at least one question prompting some critical introspection among the student group – some reflection on possible alternative responses to what they experienced.

## **CONCLUSION**

Our evidence clearly shows that the clinical placement experiences of nursing students have the potential to impact on their future work decisions. The clinical teachers agreed that a positive experience during clinical placement was vital to both widen and deepen the students' nursing education, and to present the sector in a positive light.

It was the nature and sources of the negative experiences in aged care placements that this study sought to uncover and understand. There appear to have been three main sources. First, the groups revealed unspoken beliefs and values related to aged care nursing that had been present in the students' environment but never brought to the surface of their awareness and directly questioned. Secondly, there were concerns about the organisation of placement experiences, many of which appear to be within the domain of the university. Finally, certain residential aged care industry practices and issues negatively influenced students' experiences; and some at least of these issues and practices do lie within the domain of industry leaders.

Insights gained from this study suggest strategies to accentuate the positive and eliminate or reduce the negative influences on students prior to and during clinical placements. These are being considered by the university – industry group that initiated the study. In collaboration with other researchers a national study of the impact of the undergraduate student aged care clinical experience is about to begin.

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# THE ATTITUDES AND PRACTICES OF NEONATAL NURSES IN THE USE OF KANGAROO CARE

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## ABSTRACT

### Objectives:

To survey the attitudes and practices of Australian neonatal nurses in the use of kangaroo care (KC) and identify possible concerns with promoting KC in the neonatal intensive care unit (NICU).

### Design:

A two-phase research approach was used that included a descriptive survey followed by in-depth interviews with a subset of survey respondents.

### Sample:

Thirty four nurses working in the NICU of a large public hospital in Melbourne completed a survey questionnaire. Four respondents were subsequently selected for follow-up interview to explore in greater depth issues associated with promoting KC in the NICU.

### Outcome measures:

Quantitative data were analysed to describe the attitudes, practices and role of the neonatal nurse in promoting KC. Analysis of qualitative responses to survey questions and interviews were coded and major themes identified.

### Results:

All neonatal nurses surveyed assisted and encouraged parents to provide KC and the majority agreed on the benefits of KC for both infant and parents. There was a general acceptance that KC can be practiced with low birth weight infants requiring intubation and all but two nurses found facilitating KC professionally satisfying. Results also identified practical concerns with the practice of KC and some uncertainty that KC promotes breastfeeding. Notable constraints to promoting KC in the NICU were heavy staff workloads, insufficient education, lack of

organisational support and the absence of clear protocols, especially for low birth weight infants.

### Conclusions:

This study confirms neonatal nurses strongly support the use of KC in the NICU. Although the majority of nurses reported positive attitudes and practices, they did identify a number of educational and practical concerns that need to be addressed to ensure KC with low birth weight infants is safe and effective.

## INTRODUCTION

Parent-infant attachment is a complex human relationship brought about by physical closeness and early interaction between parents and their newborn (Bialoskurski et al 1999). When an infant is born prematurely the natural bonding process is often hampered, particularly when the infant requires admission to a neonatal intensive care unit (NICU). The NICU is a highly sophisticated environment that provides constant technical support to maintain the physiological status of the neonate. As recipients of complex care, premature infants are necessarily separated from their parents, which can adversely affect the establishment of parent-infant attachment at this critical stage (Bialoskurski et al 1999; Gowan and Nebright 1997).

Previous research has identified that neonatal nurses tend to focus more on meeting the medical and technological needs of the infant than on building positive interactions between parents and their babies (Fenwick et al 2001a, 1999). Neonatal nurses, however, play a pivotal role in facilitating the attachment process by promoting early parent-infant contact through encouraging parents to touch, hold and care for their infant (Smith 1996) as well as establishing collaborative and positive relationships with the parents (Fenwick et al 2001a, 2001b).

Kangaroo care (KC) involves placing the newborn, clad only in a diaper, prone and upright on the parent's

chest to maximise skin-to-skin proximity (Victor and Persoon 1994). A number of studies have investigated the physiological effects of KC when used with premature infants. Findings have shown that during and after KC the heart rate, respirations and oxygen levels of the neonate remain within normal limits (Messmer et al 1997; Legault and Goulet 1995). KC is also considered a safe practice when used with ventilated (Ludington-Hoe et al 1998; Gale et al 1993) and very low birth weight infants (Bauer et al 1996; Bosques et al 1995).

Positive effects of KC include fewer episodes of idiopathic apnoea (Hadeed et al 1995), improved sleep patterns (Ludington-Hoe et al 1999; Messmer et al 1997) and better thermoregulation (Hadeed et al 1995) for the neonate, enhanced lactation in breastfeeding mothers (Hill et al 1999) and a decrease in maternal depression (Dombrowski et al 2001).

KC is also beneficial for parents of premature infants. A number of studies (Roberts et al 2000; Neu 1999; Smith 1996) have reported skin-to-skin holding provided mothers with a greater sense of wellbeing, personal fulfilment and confidence in taking care of their infant. Likewise fathers, although more reticent than mothers, commented positively on the experience (Moran et al 1999; Neu 1999). However, as noted by Neu (1999) and Moran et al (1999), parents need support from nursing staff to allay their anxiety about handling the infant and to promote confidence in using KC. The types of support found to be beneficial are information on KC and the infant's response to stimulation, verbal encouragement and reassurance, and provision of a private and comfortable environment (Baker 1993). Clearly, the attitudes of neonatal nurses are a major determinant of the degree to which KC is a positive experience for parents.

A review of the literature showed a paucity of information about the attitudes of neonatal nurses towards KC. Although only five articles were located that described the response of nurses to KC (Bell and McGrath 1996; Victor and Persoon 1994; Drosten-Brooks 1993; Gale et al 1993; Hamelin and Ramachandran 1993), the authors concluded that most NICU nurses responded positively and were keen to implement KC in their practice. However, staff resistance was not uncommon (Drosten-Brooks 1993; Gale et al 1993), with some nurses expressing concerns about skin-to-skin holding, especially when it involved very small infants (birth weight less than 1000 grams) and those requiring mechanical ventilation (Bell and McGrath 1996; Gale et al 1993).

Specifically, nurses were apprehensive about the possibility of apnoeic spells and oxygen desaturation, dislodgement of intravenous lines and accidental extubation (Victor and Persoon 1994; Drosten-Brooks 1993; Gale et al 1993). Other factors that may discourage neonatal nurses from recommending KC are insufficient knowledge, lack of clear practice guidelines (Gale et al 1993) and parent anxiety (Affonso et al 1993).

As the infant's primary care provider, neonatal nurses are in a position to either advocate or discourage the use of KC in the NICU. Studies by Fenwick et al (2001a, 2001b, 1999) on the context and nature of interactions between neonatal nurses and parents in Australian level 2 nurseries (special care nurseries) highlighted the need for neonatal nurses to develop quality interactions with parents. Their studies revealed that the attitudes, behaviours and practices of nurses greatly impacted on the woman's experience of mothering in the NICU. Promoting KC is one way neonatal nurses can enhance closeness between parent and infant. To date, no research has systematically examined Australian neonatal nurses' attitudes towards KC. Hence, the purpose of this study was to survey the attitudes and practices of neonatal nurses in the use of KC in the NICU and examine in greater depth, issues and concerns nurses may have in promoting KC in their area of clinical practice.

## METHOD

### Research design

A two-phased research design was used to obtain both quantitative and qualitative data. The first phase was a descriptive survey of neonatal nurses' attitudes and practices in the use of KC. The second phase involved interviews with a small sample of neonatal nurses to obtain more comprehensive information about issues and concerns relating to KC.

### Sample

The study was conducted in a 48-bed NICU of a major teaching hospital in Melbourne, Australia. All registered nurses working in the unit were invited to participate in the study. Of the 91 nurses approached, 34 (37%) agreed to complete the survey and 16 indicated an interest in being interviewed. Of these 16, four were randomly selected for follow-up interview.

### Data collection

#### *Survey questionnaire*

A self-report questionnaire was designed to obtain demographic data (age, gender, race) and nursing experience (employment status, nursing educational qualifications, years of experience as a nurse, length of experience in neonatal nursing) information, and to assess attitudes and practices relating to KC. Attitudes to KC were measured using a list of 14 statements that reflected the benefits of KC for parents and infants, current practices and the role of the nurse. For each statement, respondents were asked to state their opinion using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. Closed-ended questions requiring a 'yes' or 'no' were used to ascertain KC practices. The questionnaire concluded with an open-ended question that invited participants to comment on the advantages and disadvantages of KC.

The content validity of the questionnaire was established by an expert panel of four neonatal nurses. The instrument was then pre-tested on a small sample of neonatal nurses (n=5) not included in the study to ensure clarity of instructions and that items were understandable and worded appropriately.

### Interview schedule

Four core open-ended questions were devised to encourage participants to describe their perceptions, experiences and views on KC:

- What are your opinions about kangaroo care?
- How do you feel about facilitating kangaroo care?
- What are your experiences in facilitating kangaroo care?
- What assistance or support is needed to facilitate kangaroo care?

### Procedure

On receipt of approval from the hospital's Ethics Committee, the survey questionnaire was distributed by internal mail to all registered nurses (excluding staff on leave) working in the NICU. A consent form and a cover letter detailing the study were attached to each questionnaire.

Participants were asked to consent to completing the survey and indicate if they were interested in participating in a follow-up interview. Respondents were instructed to place the completed questionnaire and consent form in the envelope provided and post in the secure box located in the NICU. Returned questionnaires were then coded and data entered on computer for analysis using SPSS for Windows (version 11). Responses to the open-ended question were collated and subjected to a content analysis.

On completion of the survey four participants were randomly selected for a follow-up interview conducted by the researcher at a time and place convenient to the participant. The format of the interview was semi-structured, being guided by the preliminary set of four open-ended questions. Participants were also encouraged to expand on their responses to the questionnaire. Each interview was audio tape-recorded and lasted approximately

30-45 minutes. On completion of the interviews, tapes were transcribed and subjected to content and thematic analysis.

## RESULTS

The findings from this study are presented in two parts. Part one reports the results from the survey of neonatal nurses' attitudes and practices in regard to KC, and Part two reports the analysis of responses obtained at follow-up interview.

### Survey results

#### Sample characteristics

The 34 nurses who participated in the survey provided a wide representation of neonatal nurses working in the NICU. All respondents were female with the majority Caucasian (87.5%) and working part-time (84.8%). The mean age of the sample was 39.7 years (SD=7.74, range 25 to 56 years), with an average of 19.5 years of nursing experience and 9.9 years working in neonatal nursing. The basic nursing education qualification held by most nurses was a hospital diploma (61.8%) and undergraduate nursing degree (26.5%). Only seven of the 34 respondents had a postgraduate qualification in neonatal nursing.

#### Attitudes towards kangaroo care

Response frequencies and mean ratings were calculated for each of the 14 items of the attitude scale. Results are presented firstly for benefits and then for practice/role issues.

#### Benefits of kangaroo care

Frequencies and mean scores (see table 1) show nurses strongly agreed on the benefits of KC in promoting bonding, enhancing the physical wellbeing of the infant and increasing parents' confidence. Although mean scores indicate a positive response, not all respondents agreed that KC results in more effective breastfeeding, or disagreed with the statement that the benefits of KC are overstated. Of note is that nearly half the respondents were uncertain about the effects of KC on breastfeeding.

**Table 1: Frequencies and mean scores for opinions on the benefits of kangaroo care**

Item	1 Strongly disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly agree	M
1. Kangaroo care promotes bonding.	-	-	-	9 (26.5)	25 (73.5)	4.74
2. Kangaroo care has a positive effect on physical wellbeing of infant.	-	-	2 (5.9)	14 (41.2)	18 (52.9)	4.47
3. Kangaroo care enhances the parents' confidence.	-	-	3 (8.8)	12 (35.3)	19 (55.9)	4.47
4. Kangaroo care results in more effective breastfeeding.	-	-	15 (44.1)	8 (23.5)	11 (32.4)	3.88
5. Potential benefits of kangaroo care have been overstated.	5 (14.7)	19 (55.9)	7 (20.6)	3 (8.8)	-	3.76

\* reversed scored

**Table 2: Frequencies and mean scores on opinions on the benefits of kangaroo care**

Item	1 Strongly disagree	2 Disagree	3 Uncertain	4 Agree	5 Strongly agree	M
1. *Kangaroo care should not be practiced with an intubated infant.	13 (38.2)	19 (55.9)	-	2 (5.9)	-	4.26
2. *Kangaroo care should only be practiced for infants weighing 1000 g. or more.	14 (42.4)	15 (45.5)	4 (12.1)	-	-	4.30
3. Kangaroo care should begin within a few hours of birth.	5 (15.6)	9 (28.1)	11 (34.4)	6 (18.8)	1 (3.1)	2.66
4. All parents should be encouraged to practice kangaroo care.	-	2 (5.9)	1 (2.9)	23 (67.6)	8 (23.5)	4.09
5. All parents should be given relevant information on kangaroo care.	-	-	-	15 (44.1)	19 (55.9)	4.53
6. Nurses should remain with parents for support and assistance during Kangaroo care.	-	-	1 (2.9)	14 (41.2)	19 (55.9)	4.56
7. Nurses should facilitate kangaroo care when the NICU is quiet.	2 (5.9)	20 (58.8)	3 (8.8)	6 (17.6)	3 (8.8)	2.65
8. Facilitating kangaroo care is professionally satisfying.	-	1 (2.9)	1 (2.9)	19 (55.9)	13 (38.2)	4.29
9. *Facilitating kangaroo care is an added burden to NICU nurses.	7 (20.6)	17 (50.0)	2 (5.9)	8 (23.5)	-	3.68

\* reversed scored

### Practice/role issues

Results presented in table 2 show unanimous agreement that parents be informed about KC, and 'very strong' to 'strong' agreement on providing parents with support, assistance and encouragement to practice KC. There was also agreement that KC can be practiced with intubated and low birth weight infants, although most nurses disagreed or were uncertain that KC should begin within a few hours of birth. There was some disagreement that kangaroo care be facilitated only when the unit is quiet. All but two nurses acknowledged that facilitating KC was professionally satisfying. Although most nurses agreed facilitating KC was not an added burden, eight thought otherwise.

### Kangaroo care practices and activities

Frequency of 'yes' responses to KC practices and related activities are presented in table 3. Results show all respondents encouraged and assisted both parents to provide KC, particularly for preterm infants with a birth weight of more than 1000 gm, and in the case of mothers, for infants requiring ventilation and those with very low birth weights (less than 1000 gm). Fewer nurses said they assisted parents in providing KC for normal term infants. The majority of nurses (85.3%) provided parents with information on KC. In response to the questions on staff education, half had received supervised instruction on the techniques of KC and a third had participated in a continuing education program.

Responses to the open-ended question inviting nurses to comment further on KC were collated and common themes and issues identified. Results of the content

**Table 3: Kangaroo care practices and activities**

Practice	Yes responses N (%)
1. Encouraged mothers in the participation of kangaroo care	34 (100)
2. Assisted mothers in the participation of kangaroo care	34 (100)
<ul style="list-style-type: none"> <li>• with normal term infants</li> <li>• with preterm infants (&gt;1000 g.)**</li> <li>• with preterm infants (&lt;1000 g.)**</li> <li>• with preterm ventilated infants</li> </ul>	21 (61.8) 31 (96.9) 28 (87.5) 33 (97.1)
3. Encouraged fathers in the participation of kangaroo care	33 (97.1)
4. Assisted fathers in the participation of kangaroo care	33 (97.1)
<ul style="list-style-type: none"> <li>• with normal term infants</li> <li>• with preterm infants (&gt;1000 g.)*</li> <li>• with preterm infants (&lt;1000 g.)*</li> <li>• with preterm ventilated infants</li> </ul>	15 (44.1) 30 (90.9) 24 (72.7) 24 (70.6)
5. Provided information about kangaroo care to parents	29 (85.3)
6. Participated in a continuing education program about kangaroo care	12 (35.3)
7. Been supervised in the technique of kangaroo care	18 (52.9)

\* 1 missing case \*\* 2 missing cases

analysis are presented under three headings: advantages, disadvantages and other issues.

### Advantages

Five main themes were identified, four of which reiterate the benefits listed in table 1. The first theme (16

responses) related to the benefits of KC in promoting parent-infant attachment, with comments on maternal feelings of close attachment, love and caring. Several nurses also said it made them feel good as carers. The second theme (10 responses) was how kangaroo care improved parents confidence in handling their infant and participating in routine care. The third theme (8 responses) related to the physical wellbeing of the infant. Several respondents commented that kangaroo care supported the physiological and behavioural status of the infant by keeping the infant warm, maintained infant heart and respiration rate, and promoted sleep. One nurse stated that having close body contact during KC reduced the anxiety infants experienced on being separated from their parents. The fourth theme (6 responses) highlighted that KC was perceived to improve the mother's milk supply and help establish breastfeeding. The fifth theme, which is additional to the benefits noted in the survey, focused on the parents' experience of KC. Comments from six respondents noted that parents found KC enjoyable and satisfying, although two felt that fathers needed additional support and encouragement to overcome the initial fear of holding their tiny infant.

### **Disadvantages**

Comments on the disadvantages of KC were grouped into four themes. The first theme (13 responses) was the time involved in preparing the infant, supporting parents and monitoring the infant's condition during KC. This was considered a major problem during times of staff shortage. The second theme (8 responses) reflected concerns about the NICU environment, such as lack of space and privacy for parents practising KC. The third theme (7 responses) focused on the safety and stability of the infant, with major concerns being dislodgement of equipment (eg. arterial and venous lines, endotracheal tubes) and the infant becoming hypothermic. These issues applied particularly to very small intubated infants. Another difficulty noted by two nurses was parents commenting on not having eye contact with their infant because of the positioning for KC.

### **Other issues**

Respondents identified two additional issues: educating parents and staff education. Four nurses emphasised the importance of providing parents with information about KC, what to expect in terms of infant response, and potential benefits for both parent and infant. Parents also need to know what to wear when providing KC. On the matter of staff education, two nurses stressed the need for in-service training, appropriate support and supervision, and to be aware of the physiological effects of KC on the premature infant.

### **Analysis of interview responses**

The primary purpose of the qualitative interviews was to explore in greater depth issues and concerns nurses may have promoting kangaroo care within the neonatal intensive care setting. Results of the analysis generated

three major themes: understanding kangaroo care, practice issues and support needed to facilitate KC.

### **Understanding kangaroo care**

This theme incorporated comments on the nurses' knowledge of KC; the benefits for both parent and infant; and the importance of nurses' attitudes and willingness to promote and facilitate the practice of KC in the NICU. Three of the four respondents said they were knowledgeable about the use of KC and expressed a sense of excitement and enthusiasm about facilitating skin-to-skin holding. As noted by one respondent: *'I find it a great joy when the mums do hold the baby against their chest... irrespective of whether it's a primigravida or a multigravida. You get the same buzz out of it and so do the dads.'*

### **Practice issues**

The focus of this theme was on time implications, the condition of the infant and concerns with dislodgement of equipment. In general comments confirmed the survey findings. All respondents emphasised the time needed to facilitate KC, with one nurse commenting on the time required to explain KC to parents and another emphasising the time needed to prepare the environment. Assistance from another nurse was also required to transfer the infant from the incubator to the parent's chest and to monitor the infant's physiological status during the procedure. According to one interviewee:

*'You would probably need... almost an hour I suppose ... You'd get the baby up but we make sure it's got a clean nappy and its observations (vital signs) have all been taken... you need to make sure mum is comfortable, find your chairs and pillows and all the bits and pieces and actually get the baby out. You might need a second person to help you with the lines and just rearranging things.'*

All respondents expressed a strong sense of frustration with increased workloads and low staffing levels, making it difficult for them to find time to facilitate KC effectively.

The condition of the infant was an area of concern, with a consensus that an infant's tolerance level was a deciding factor in encouraging parents to practice KC. One nurse commented that infants with a low tolerance of handling could desaturate or become bradycardic. Another concern was the danger of dislodging infusion lines and respiratory tubes, although, contrary to survey findings, three respondents felt their experience and education gave them the confidence to deal with this situation. The key was to prevent dislodgement by asking for assistance from another staff member.

### **Support**

Two areas of support were identified. One was the importance of providing support to parents in the form of education and to assist parents' understanding of skin-to-skin holding and what it entails. As one respondent

mentioned: *'it's a parent education thing too...explaining to them what it actually means and how they can go about doing it and how often and how long it does actually take...you need to sort of explain to parents what to wear.'* The other was support for staff in the form of in-service education and the development of practice guidelines.

Respondents viewed staff education as essential in providing them with the knowledge and skill to facilitate skin-to-skin holding. Only then can nurses give accurate and supportive information to parents. As stated by one nurse *'I think they [nurses] need to have a knowledge of it, I think that's fairly important and I am not sure that everybody does have... myself included, I probably need more knowledge... Certainly it needs to be revisited a lot of the time so that the staff can see the importance of it.'* Organisational support is also needed to fund continuing education and to develop practice guidelines and protocols, although opinions on the use of guidelines were mixed. Three respondents said having guidelines would be useful but indicated that some inflexibility could be created.

## DISCUSSION

The majority of the neonatal nurses surveyed strongly supported the practise of KC in the NICU. In particular, they acknowledged the benefits of KC in promoting parent-infant attachment, the physical wellbeing of the infant and parental confidence. However, a number of issues were identified in relation to: infant safety; how KC is implemented; practical constraints; and the need for parent and staff education. Survey findings were supported by the qualitative responses.

It is well established that attitudes are a major determinant of behaviour. In this study 'strong' to 'very strong' acknowledgment was given to the benefits of KC in facilitating bonding, enhancing the physical wellbeing of the infant, and increasing parents' confidence in caring for their infant. These results support previous findings reported by Bell and McGrath (1996), and Gale et al (1993), which found most NICU nurses responded positively to skin-to-skin holding and were keen to implement it in their practice. The only area of uncertainty was whether KC is effective in promoting breastfeeding, despite research evidence of a positive relationship between KC and breastfeeding (Hurst et al 1997).

There was strong agreement that: KC is appropriate for intubated and very low birth weight (<1000 g.) infants; staff encourage parents to practice KC; the importance of nurses providing parents with relevant information and being present during KC to offer support. As highlighted by Neu (1999) and Moran et al (1999), support from nurses can allay parent anxiety and promote greater confidence in the use of KC. Parental support typically reported by the nurses was similar to that mentioned by Baker (1993): parent education, verbal encouragement

and providing a conducive environment for kangaroo care. Affonso et al (1992) also emphasised the need for nurses to evaluate parental responses during KC and provide support and assistance as required.

Another aspect that received strong agreement was that promoting KC is professionally satisfying: a key factor in developing a positive attitude. The only area of uncertainty or low agreement was that KC begins within a few hours of birth. This could be because some infants on admission to the NICU may not be stable enough to tolerate KC. That positive attitudes of neonatal nurses influenced their behaviour is clearly reflected in the survey of practices and activities. All but a few nurses encouraged and assisted both mothers and fathers to practice KC with pre-term infants, irrespective of birth weight and whether the infant was intubated or not. The majority of nurses also provided parents with information on KC.

Including a qualitative component to the study in the form of open ended questions and interviews served to validate survey responses and identify concerns and issues associated with practicing KC in the NICU. One particular concern expressed by respondents was the safety of the infant during KC. In accord with previous studies (Bauer et al 1996; Bosque et al 1995; Legault and Goulet 1995), there was general agreement that KC had no adverse effects on the physiological status of the infant. Some nurses, however, were worried the infant may become hypothermic, that venous and arterial lines may be dislodged, or accidental extubation could occur during transfer.

Nurses in this study also recognised that some infants may not be stable enough to tolerate handling during KC, particularly infants weighing less than 700 grams and requiring mechanical ventilation. It is because of these concerns that some authors (Bell and McGrath 1996; Gale et al 1993) advocate guidelines that specify the precautions needed to ensure the infant remains stable and to avoid inconsistent practices. These guidelines should include criteria for selecting infants for KC, preparation of the environment, the procedure for transferring the infant from incubator to parent, and monitoring the infant's physiological status during and after the procedure. Moreover, several nurses considered it important protocols remain flexible so as not to restrict the practice of KC. As suggested by Ludington-Hoe et al (1994), consultation with medical staff may be needed in determining the eligibility of infants for KC.

Promoting KC in the NICU is not without practical problems, particularly providing a suitable environment and dealing with time constraints. As noted by Gale and Franck (1998), the NICU environment often limits the parent's ability to care for their infant and to practice KC. Most of the available space is taken up with high technology equipment: a barrier which some believe can directly affect the parent-infant attachment process (Gale and Franck 1998; Walker 1998).

The NICU is also a very noisy and busy place, making it difficult to offer parents the quiet, private and relaxing environment they need to effectively implement KC. The other major barrier identified by respondents was insufficient time to adequately prepare the infant for KC and provide support to parents. This was particularly problematic when the unit was busy or short staffed. However, there is some evidence that the beneficial effects of KC, such as the settling effect on the infant and greater involvement of parents in providing care, can result in less workload for the staff (Ludington-Hoe et al 1994).

Several authors emphasised the importance of staff education in promoting and facilitating KC (Bell and McGrath 1996; Victor and Persoon 1994; Drosten-Brooks 1993). This applies particularly for new staff. Although most nurses were aware of the benefits of KC, only half had been supervised in the technique and a third had not participated in an education program related to KC. The need for in-service education to provide neonatal nurses with up-to-date information on the efficacy and beneficial effects of KC for infant and parents was apparent.

Education programs should include skill development components, especially how to monitor the infant's physiological status and techniques in infant transfer, and the opportunity for supervised practice. Being fully informed of the practice of KC enables neonatal nurses to give accurate and supportive information to parents and help overcome any reservations they may have about KC.

## LIMITATIONS

A notable limitation of this study was the low response rate and a relatively small sample of nurses recruited from the NICU of only one hospital. Thus caution is needed when interpreting and generalising the findings. Clearly, a more extensive survey of neonatal nurses is needed to confirm findings from this study. However, results do highlight some important clinical issues and the need for staff education that will encourage nurses to routinely promote KC to enhance parent-infant attachment and increase parental involvement in the care for their infants.

## CONCLUDING COMMENTS

Infants admitted to a NICU require complex medical treatment and care. Because of the intensity of care these infants are deprived of personal contact at a time critical for the development of a close infant-parent relationship. This study highlights the use of KC as a means of facilitating parent-infant attachment, and provides valuable insights into the attitudes and practices of neonatal nurses in promoting KC within the highly specialised NICU environment. The study also indicates the need to implement strategies to overcome practical constraints that have been identified by a group of neonatal nurses highly committed to promoting KC.

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# THE EFFECTIVENESS OF A 15 MINUTE WEEKLY MASSAGE IN REDUCING PHYSICAL AND PSYCHOLOGICAL STRESS IN NURSES

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**Key words:** massage, randomised controlled trial, massage therapy, nursing workforce, nurse retention

## ABSTRACT

### **Objective:**

To investigate the effectiveness of massage therapy in reducing physiological and psychological indicators of stress in nurses employed in an acute care hospital.

### **Design:**

Randomised controlled trial.

### **Setting:**

Acute care hospital in Queensland.

### **Subjects:**

Sixty nurses were recruited to the five week study and randomly assigned to two groups.

### **Intervention:**

A 15 minute back massage once a week. The control group did not receive any therapy.

### **Main outcome measures:**

Demographic information, a life events questionnaire and a brief medical history of all participants was completed at enrolment. Physiological stress was measured at weeks one, three and five by urinary cortisol and blood pressure readings. Psychological stress levels were measured at weeks one and five with the State-Trait Anxiety Inventory (STAI).

### **Results:**

Differences in the change in urinary cortisol and blood pressure between the two groups did not reach statistical significance. However, STAI scores decreased over the five weeks for those participants who received a weekly massage. The STAI scores of the control group increased over the five week period. These differences between the groups were statistically significant.

### **Conclusion:**

The results of this study suggest that massage therapy is a beneficial tool for the health of nurses as it may reduce psychological stress levels. It is recommended that further large studies be conducted to measure the symptoms of stress rather than the physiological signs of stress in nurses.

## INTRODUCTION

The ageing of the nursing workforce, decreasing numbers of nurses per head of population, increasing hospital admissions and increasing patient acuity are some of the factors which place pressure on nurses as they struggle to provide quality nursing care (Australian Institute of Health and Welfare (AIHW) 2004, 2003, 1997). During the last 30 years there has been increased recognition of the impact of work-related stress on health care employees with evidence suggesting that they suffer more ill effects of stress than other workers (Commonwealth Department of Health and Aged Care 2000; Muncer et al 2001).

Numerous studies have indicated that nurses experience high levels of workplace stress related to individual, social, environmental, occupational and organisational factors (McGrath et al 2003; Bennett et al 2001; Escot et al 2001). There are multiple health related consequences of chronic stress including physical symptoms such as digestive disturbance, hypertension, headache and sleeping difficulties and psychological effects such as anxiety (Corwin 1996). In addition, there is evidence to suggest that nurses suffer higher rates of mortality, psychiatric admissions and physical illness than workers outside the health care environment (Kirkcaldy and Martin 2000). Stress induced anxiety can lead to poor performance and increased nursing errors and studies have identified job stress as a major cause of nurses leaving the health care workforce (Smith et al 2001; Bratt et al 2000).

There are many theories about the causes and effects of stress (Lazarus 1999; Selye 1993). Cognitive processes, perceptions of events and emotive coping styles are frequently cited as influencing the effects of stress on the individual (Searle et al 2001; Lazarus 1999). A common problem with studies attempting to measure the stress response is the imprecise definition of stress. Anxiety scales such as the State-Trait Anxiety Inventory (STAI) have frequently been used to assess the psychological stress response in study participants (Heinrichs et al 2003; Spielberger 1983). Anxiety and stress elicit similar physical symptoms from the activation of the sympathetic nervous system. The physiological changes of stress can be demonstrated by measuring the long term physiological outcomes of sympathetic stimulation, such as, elevation of blood pressure, heart rate and cortisol secretion (Clow 2001).

The challenge for managers is to find interventions that support nurses individually and organisationally and reduce levels of stress. Massage therapy is one intervention that has received attention in recent years as a potential stress management tool. However, the studies reporting on the effectiveness of massage have often been conducted on small sample sizes, many have used non healthy subjects and research design has not been rigorous. A number of studies of massage in the workplace have been reported (Hernandez-Reif et al 2000; Katz et al 1999; Cady and Jones 1997). These studies have not all been conducted rigorously, the reports have not included effect size information and the sample sizes have been small. In order for managers to be confident about the usefulness of massage therapy as a tool to decrease work related stress for nurses, further evidence is required.

## AIM

The purpose of this study was to determine the effect of massage therapy on the stress levels of nurses working in a hospital environment. This was achieved by comparing physiological and psychological indicators of stress in a control group of nurses who did not participate in the massage therapy with those of an experimental group, who did participate in the massage therapy.

## METHOD

A randomised controlled trial was conducted in one 200 bed campus of a 650 bed regional hospital in South East Queensland. Approximately 350 full-time and part-time nurses were employed on the campus. The study was supported by funding from the local Hospital Foundation and received approval from the Human Research Ethics Committees of both the health district and a local university.

### Intervention

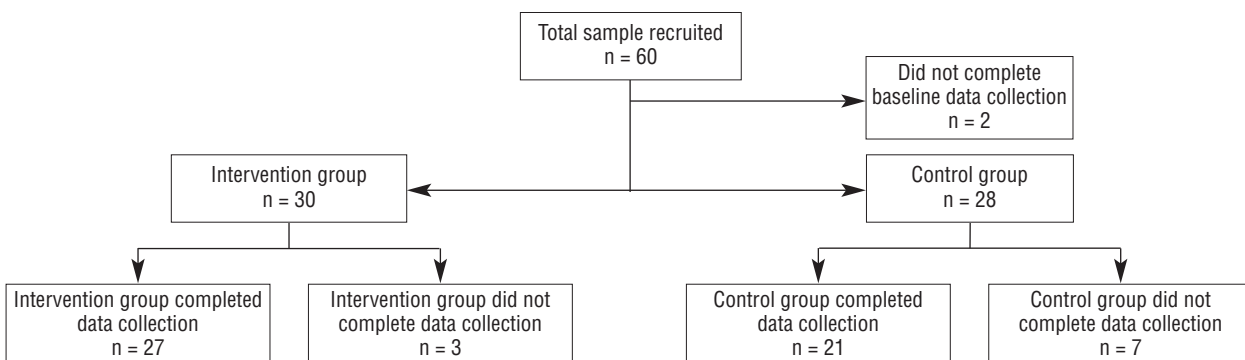
The intervention was conducted in a single room situated in the surgical wing which was lit with natural light. The room was relatively quiet, private and located within easy walking distance for the participants from all clinical areas. Room temperature was comfortable and maintained by air conditioning. Each participant randomised into the intervention group was given a full back massage using grape seed oil as a skin lubricant. The massage was based on the Swedish massage technique of Per Henrik Ling (Fritz 2000). The control group did not receive any active intervention and were requested to continue with their work, meal breaks and personal lifestyle as usual.

### Sample

Sixty nurses, including enrolled nurses, registered nurses and nurse managers, volunteered for the study. The participants were then randomly assigned to either treatment or control groups using a random envelope and number system. As effect size has not been accurately reported in previous studies it was not possible to estimate the sample size that would provide an adequate power to the data analysis.

Two participants had dropped out of the study by the end of week one. Consequently, 28 participants were left to take part in the control group data collection while 30 participants took part in the intervention group. Of the 58 remaining participants, 48 (83%) completed all data required at each time point of week one, three and five of the study. See Figure 1 for details of drop outs.

Figure 1: Sampling, randomisation and drop outs



## Data collection

As there are contraindications to performing massage therapy on people with certain physical disorders a screening tool was administered to the participants before further data collection began (Fritz 2000). This tool screened for physical disorders and the prescribed use of anxiolytic drugs, glucocorticoids, androgens and phenytoin which are effective suppressors of stress-induced cortisol secretion (Gaedeke 1996). No participants were excluded from the study on the basis of this screening.

Participants were given further information, requested to sign a consent form and complete a questionnaire in relation to demographic information. A Life Events questionnaire was completed in the first week of the study. This form measures participants' perceptions of personal life events experienced over the previous four-week period and was used to assess extreme situational stress in the sample that might affect physiological or psychological indicators of stress. It was based on the Social Readjustment Rating Scale and modified by Field (2000).

The outcome measures used in this study were the Spielberger State-Trait Anxiety Inventory (STAI), mean arterial blood pressure and urinary cortisol levels. Data were collected over a consecutive five-week period. The STAI was completed in the first, third and fifth week of the data collection. The STAI is reported to be one of the best and the most extensively used of the standardized anxiety measures and uses responses to four-point Likert scale (Spielberger 1983). Each scale consists of 20 statements that the participant rates to describe how they generally feel (trait) or how they feel at a particular moment in time (state). In studies conducted by Spielberger (1983), test-retest reliability coefficients of 0.73 to 0.86 and 0.86 to 0.92 have been reported for the trait subscale and coefficients of 0.16 to 0.54 and 0.83 to 0.92 for the state subscale.

All participants were requested to supply a first morning urine specimen in the first, third and fifth weeks. These specimens were frozen and transported to the pathology department of a large Brisbane hospital for cortisol assay levels. Cortisol is known as the 'stress hormone' and has been measured in urine in at least two previous studies on the effects of massage therapy to ascertain the physiological response of the body (Field et al 1996; Field et al 1991). In healthy men and women aged between 18 and 55 years, the range for random early morning cortisol is less than 25 nmol/mmol. The researcher measured the participants' blood pressure (MAP = Pdias + 1/3 Psys - Pdias; normal is less than 105) before the weekly massage sessions and measured the control groups' blood pressure weekly. The experience of stress was expected to affect blood pressure due to the activation of the sympathetic nervous system during stress (Pasternac and Talejic 1991).

Data were entered into the Statistical Package for the Social Sciences (SPSS) version 10. Analysis involved

descriptive and inferential statistics. A significance level of 0.05 was set for all inferential tests. Due to the small number of participants and the non-normal distribution of some variables there was a risk of committing a Type II error thus non-parametric statistical tests were employed in this study. Univariate descriptive statistics were calculated for the total sample. The Chi-Square Test was used to test for differences between groups when the data were measured at the nominal level. The Mann Whitney U test was used to test differences between groups when the data were measured at the interval level.

## RESULTS

Participants represented all clinical areas and nursing levels of the hospital campus. Fifty-one (87.9%) worked shiftwork while seven (12.1%) worked business hours. Table 1 presents the descriptive statistics for data collected at interval level related to age, work history and baseline outcome measures for the total sample.

A medical history from clients is required when undertaking a treatment of massage therapy. Table 2 presents the frequency and percentage of physical conditions suffered by participants in this study. None of the participants was hypertensive or being treated for hypertension at the beginning of the study.

Almost half (47.3%-41.8%) the participants identified that they suffered from headaches, fatigue, tension or stress and muscle or joint pain. Over one third (34.5%)

**Table 1: Description of age, work history and baseline measures - total sample**

Characteristic	n	Median	IQR
Age	57	42.0	14.0
Length of employment at GCH	58	1.0	1.6
Total clinical experience	58	16.0	19.0
Mean arterial pressure	51	93.3	18.4
State anxiety score	57	38.0	17.5
Trait anxiety score	57	38.0	16.0
Life events questionnaire score	57	8.0	9.0
Urinary cortisol	55	6.0	9.0

**Table 2: Description of conditions suffered - total sample**

Condition suffered	Frequency condition suffered (n=55)	Percentage
Muscle or joint pain	26	47.3
Fatigue	25	45.5
Tension or stress	25	45.5
Headaches	23	41.8
Sleep difficulties	19	34.5
Allergies or sensitivities	14	25.5

**Table 3: Outcome measures of change over time – Mann Whitney U Test**

Outcome measures	Week 1 Median (IQR)	Week 5 Median (IQR)	Median change over time adjusted for baseline (IQR)	Mann Whitney U test	p value
<b>Urinary cortisol</b>					
Total sample	6.0 (9.0)	6.5 (8.5)			
Massage group	6.5 (9.7)	6.0 (12.0)	-0.17 (2.54)	244.5	0.50
Control group	6.0 (7.0)	7.0 (5.5)	0.00 (1.91)		
<b>MAP</b>					
Total sample	93.3 (18.4)	86.6 (14.4)			
Massage group	83.3 (20.0)	83.3 (9.1)	-0.04 (0.19)	271.0	0.73
Control group	93.3 (12.6)	92.4 (14.3)	-0.03 (0.09)		
<b>State-STAI</b>					
Total sample	38.0 (17.5)	37.0 (16.0)			
Massage group	44.5 (17.2)	33.0 (14.0)	-0.13 (0.25)	162.5	0.006*
Control group	33.0 (12.0)	40.0 (19.7)	0.08 (0.56)		
<b>Trait-STAI</b>					
Total sample	38.0 (16.0)	40.0 (14.0)			
Massage group	44.0 (18.7)	38.0 (12.0)	-0.05 (0.18)	166.5	0.008*
Control group	35.0 (12.0)	41.5 (18.2)	0.05 (0.30)		

\*Significant at the level less than 0.01

suffered sleep difficulties and one quarter (25.5%) had allergies or sensitivities.

The baselines measures of those who completed data collection and those who did not complete and those in the control and intervention groups were compared. At week one there were no statistically significant differences in the baseline measures of age, clinical experience, physiological or psychological scores between participants in either intervention group nor between participants who withdrew compared to those who completed the study.

The Mann Whitney U tests were used to test the change in outcome measures between Week 1 and Week 5. The following equation was used to calculate change over time and adjust for the baseline:

$$\frac{\text{Week 5 value} - \text{Week 1 value}}{\text{Week 1 value}}$$

Table 3 presents the descriptive and inferential statistics related to the outcome measures.

Table 3 indicates that the median urinary cortisol measures of the total sample, as well as the massage and control groups, were all around 6.0 and remained fairly constant over time. The mean arterial pressure was higher in the control group than the massage group and the scores remained constant for both groups. There were no statistically significant differences between the massage group and the control group in urinary cortisol or mean arterial pressure.

There was a statistically significant difference between the massage group and the control group for both the State-STAI and the Trait-STAI scores. The State-STAI score decreased slightly over time for the total sample. The State-STAI score for the massage group decreased while the State-STAI score for the control group

increased. The Trait-STAI score increased slightly over time for the total sample. The Trait-STAI score for the massage group decreased while the Trait-STAI score increased for the control group over time.

## DISCUSSION

Numerous studies have measured blood pressure pre and post massage therapy as one indicator of a relaxation response with conflicting results (Boone et al 2001; Hernandez-Reif et al 2000; Ferrell-Torry and Glick 1993). The study that reported a decrease in blood pressure following massage therapy had recruited subjects with clinically high blood pressure (Hernandez-Reif et al 2000). Those studies that recruited normotensive subjects reported no change in blood pressure post massage (Boone et al 2001; Ferrell-Torry and Glick 1993). In this study participants were normotensive with an average mean arterial pressure of 93.3 mmHg (see table 2). There was no statistically significant difference in blood pressure change between those who received massage therapy and those who did not (see table 3).

Previous studies have measured urinary cortisol as an indicator of stress (Heinrichs et al 2003; Deane et al 2002). In this study the participants were within the normal parameters of urinary cortisol consequently there was no significant reduction in urinary cortisol levels following massage therapy as compared to control (see table 3). This result does not support the findings of a number of underpowered, poorly controlled trials of massage therapy conducted by the Touch Research Institutes (Hernandez-Reif et al 2000; Field et al 1996; Field et al 1991).

State Trait Anxiety Inventory population norms have been calculated for healthy working adults (Spielberger 1983). In this study the control group had State-STAI and Trait-STAI scores that were below the population norms

while the massage group had STAI scores that were approximately eight points above population norms. However these differences were not statistically significant. As predicted in other studies (Hernandez-Reif et al 2000; Field et al 1996; Field et al 1991) the massage intervention resulted in a statistically significant decrease in both State and Trait-STAI scores (see table 3). Indeed for both State and Trait-STAI scores the median for the massage group decreased over time while for the control group the scores increased.

### Measurement issues in stress research

An issue in this study was whether or not to use salivary or urinary measures of cortisol. Previous studies have measured urinary cortisol as an indicator of stress (Heinrichs et al 2003; Deane et al 2002). Other researchers postulated that as urinary cortisol is a measure of stress it would be a useful parameter to use as an outcome measure in intervention studies (Hernandez-Reif et al 2000; Field et al 1996; Field et al 1991). Based on these studies urinary cortisol was used as an outcome measure in this randomised controlled trial. However the week one urinary cortisol levels of all but one of the participants were within normal parameters and did not demonstrate that participants were experiencing high stress levels. As most of these participants had normal levels of urinary cortisol it was unlikely that massage intervention would reduce the urinary cortisol level and this was demonstrated by the results. The usefulness of urinary cortisol measurement in healthy populations, as an indicator of stress, must therefore be questioned in future studies.

Other studies have used salivary cortisol measurement to determine stress levels (Yang et al 2001; Schulz et al 1998). Typically, this method has involved collecting saliva by holding an absorbent cotton roll in the mouth until saturated and then placing the roll in a capped plastic vial that was frozen prior to laboratory analysis. The laboratory then analysed the saliva using a radioimmunoassay (RIA) technique. There are discrepancies in the literature in relation to the most accurate measure for cortisol (Lin et al 1997). It remains unclear from this work whether salivary cortisol would be a useful outcome measure for intervention studies conducted in healthy populations.

The general premise that chronic stress leads to high cortisol levels has already been challenged in nursing populations (Yang et al 2001). Work with trauma sufferers also suggests that our understandings of the link between chronic stress and cortisol secretion are incomplete and potentially more complex than previous work has suggested (Briere 1997).

### LIMITATIONS

The results of this study need to be treated with caution because of the lack of sensitivity of some outcome measures when used in healthy populations.

All the nurses in this sample recorded early morning urinary cortisol levels within the normal range of 1-25 nmol/mmol. Changes in cortisol level within this normal range cannot be assumed to reflect a change in stress levels; rather normal diurnal or hormonal fluctuation. In addition, other studies indicated that blood pressure would be a useful outcome measure. However blood pressure was mostly within normal parameters and would not decrease because of the floor effect.

The small sample size recruited to this study limits the conclusions that can be reached. However, the randomisation process did provide two matched cohorts. A lack of funding for the project meant that no more nurses were able to be recruited. Even so, this study represents a significant improvement in sample size when compared to other massage intervention trials (Hernandez-Reif et al 2000; Ferrell-Torry and Glick 1993).

Other small studies have included placebo controls. These studies showed a variation in the effectiveness of massage compared to placebo (Hernandez-Reif et al 2000, Field et al 1996). In this study non intervention control was used rather than placebo control. Future studies may need to consider having both non intervention and placebo control groups.

### RECOMMENDATIONS

The results of this study suggest that massage therapy may be beneficial in the workplace to decrease levels of anxiety. Nurses often work in difficult and stressful situations and are constantly faced with the dilemmas associated with resource shortages. By offering access to supportive strategies for individuals, managers are demonstrating a commitment to the mission statements that espouse caring for the carers. Weekly massage therapy sessions provided to all staff may reduce psychological stress levels and improve the retention rates of nurses. Indeed, in the hospital used as the setting for this study, massage is now offered to staff at a discounted rate within the workplace.

Future massage intervention studies need to employ larger sample sizes underpinned by adequate power analysis. Further examination of the usefulness of cortisol and blood pressure measurement in healthy populations needs to be undertaken. It may be that the prevalence of stress related symptoms is a more useful outcome measure. Future studies may benefit from including symptom indices as outcome measures. In particular, headache, fatigue, muscle/joint pain and sleeping difficulties warrant further investigation.

### CONCLUSION

Weekly sessions of massage therapy, over a five week period, appear to decrease levels of anxiety in nurses employed in an acute care facility, compared to controls. Massage therapy does not appear to have an effect on

physiological measures of stress in healthy populations. While the nurses in this study had normal levels of urinary cortisol, were normotensive and were healthy enough to participate in the workforce, they demonstrated a high incidence of symptoms such as headaches, insomnia, muscle / joint pain and fatigue. These symptoms are linked in the literature to stress and they may prove to be more sensitive outcome measures in future massage intervention studies.

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# HOSPITAL IN THE HOME (HITH) CARE FOLLOWING AUTOLOGOUS STEM CELL TRANSPLANTATION FOR LYMPHOMA AND MULTIPLE MYELOMA.

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**Key words:** outpatient, chemotherapy, bone marrow transplant, autologous, hospital in the home (HITH), myeloma, and lymphoma

## ABSTRACT

### **Background:**

Advances in outpatient and supportive care and increased pressure on hospital bed usage has led to the investigation of hospital in the home (HITH) management following autologous haematological stem cell transplantation (AutoHSCT) for patients with multiple myeloma or lymphoma.

### **Design:**

The Newcastle Mater Hospital Haematology Unit together with the Mater Acute Care Community Service (MACCS) developed a protocol for HITH care following AutoHSCT.

### **Outcomes:**

Clinical outcomes of the protocol were audited: 40% (13) of patients were suitable candidates for HITH care post transplantation. Of these 84.6% (11) were readmitted to the haematology unit within seven days of discharge from hospital.

### **Conclusion:**

Our preliminary experience suggests that with adequate infrastructure support and rigorous patient selection this model of care is both safe and feasible.

## BACKGROUND

Recent advances in health care delivery have allowed the treatment of patients at home who would otherwise have previously been treated in hospital. Hospital in the home (HITH) refers to the delivery of acute hospital care to patients at home. HITH may either substitute for the entire in-hospital admission (pure HITH) or a part of the hospital admission (mixed HITH). In Australia, HITH covers a diverse range of conditions, programs, providers and funding arrangements (Ruth et al 2001).

## LITERATURE REVIEW

Data regarding outcomes of HITH are contradictory. A number of studies, including some randomised controlled studies, have shown that HITH is safe; that patient outcomes in many conditions are equivalent for patients using HITH and in-hospital care (IHC); and that both perceived quality of life and patient satisfaction are greater with HITH than with IHC (Davies et al 2000; Caplan et al 1999; Montalto 1998; Donald et al 1995; Cummings et al 1990). Two systematic reviews of HITH have been performed and each found no significant difference in health outcomes between HITH and IHC (Shepperd and Iliffe 2000; Soderstrom et al 1999). In part, these results reflect the fact that HITH has been applied to a wide range of conditions and therapies, and that outcomes of HITH may vary as a result.

In recent years, developments in chemotherapeutics and supportive care have made outpatient care of a number of haematological malignancies a possibility. Outpatient management has been shown to be a safe,

well-accepted and cost-efficient option in the treatment of a number of conditions including: febrile neutropenia related to chemotherapy, acute promyelocytic leukaemia and acute myeloid leukaemia. (Paganini et al 2003; Allen et al 2001; Johansson et al 2001; Aquino et al 2000; Girmenia et al 1999; Ruiz-Arguelles et al 1999; Lowenthal et al 1996).

Developments in therapeutics and supportive care have also made HITH care for varying types of haematopoietic transplantation a possibility. Autologous stem cell transplants, reduced-intensity allografts and conventionally conditioned allografts have all been successfully performed on an outpatient basis. The majority of experience has been with granulocyte-colony stimulating factor (G-CSF) supported autologous bone marrow or peripheral blood stem cell (PBSC) transplantation. Results from published studies suggest that outpatient autologous haematopoietic stem cell transplantation (HSCT) can be performed safely for patients with metastatic breast cancer and multiple myeloma, with reduced length of stay and hospital charges, without evidence of increased clinical complications or out-of-pocket expenses to patients (Rizzo et al 1999; Meisenberg 1997; Peters et al 1994; Sullivan et al 1994).

There are smaller numbers of reports of allogeneic HSCT being performed on an outpatient basis, although both myeloablative and non-myeloablative, reduced-intensity transplants have been performed in the ambulatory setting. The development of non-myeloablative conditioning protocols, in particular, has made routine outpatient HSCT a distinct possibility.

A number of studies have demonstrated that non-myeloablative allogeneic transplantation using both immunosuppressive, fludarabine-based conditioning regimens, and radiotherapy-based conditioning regimens is feasible and is not associated with a higher treatment related mortality (TRM) or a higher rate of long-term complications. It is acceptable to patients and their families, is less emotionally distressing for caregivers of HSCT recipients, is more able to meet their needs, and is achievable in the majority of patients (Ruiz-Arguelles 2001; Grimm et al 2000; Ruiz-Arguelles 2000; Algara 1994). Furthermore small studies of HITH following conventional allografting has suggested that it may be associated with several advantages including: faster discharge; reduced need for total parental nutrition (TPN); a lower incidence of acute graft versus host disease (GvHD); lower TRM; and lower costs, although these findings require confirmation in large prospective randomized studies (Svahn et al 2002).

Of the published studies of HITH following autologous transplantation, the majority report experience from the United States of America. There are no published reports of HITH care for transplantation in an Australian setting. In this paper we report feasibility data from an audit of an Australian haematology unit's experience of partial episode substitution (mixed HITH) following high-dose chemotherapy and autologous stem cell transplantation

for patients with Hodgkin's lymphoma, non-Hodgkin's lymphoma and multiple myeloma.

## METHOD

For the purpose of reviewing the protocol development of HITH care following AutoHSCT we undertook an audit of our clinical outcomes.

### *Patient eligibility for Hospital-in-the-home (HITH) care*

Patients undergoing autologous HSCT are referred to the HITH service by the haematology team.

To be eligible for consideration for HITH care patients must be undergoing autologous HSCT following either LACE (Lomustine, Cytosine Arabinoside, Cyclophosphamide and Etoposide) or melphalan conditioning, give informed consent, be over 18 years of age, medically stable, have available appropriate carer supervision, have a suitable home environment; be able to use their own toilet and administer their own oral medication, have access to a home telephone and available transport and be compliant with therapy. Patients would not be considered suitable for HITH care if they are: unable to comply with these conditions, are geographically isolated (live more than 45 minutes by road from hospital), unable to understand or comply with treatment or require therapy more than once per day.

### *Transplant conditioning*

Patients with Hodgkin's Lymphoma and non-Hodgkin's Lymphoma received transplant conditioning with the LACE regimen. LACE consists of Lomustine 200mg/m<sup>2</sup> orally on day 7, Etoposide 1000mg/m<sup>2</sup> on day 7, cytosine arabinoside 2g/m<sup>2</sup> on days 6 and 5 and Cyclophosphamide 1.8g/m<sup>2</sup> on days 4 to 2 inclusive.

Patients with multiple myeloma (MM) were conditioned with melphalan 200mg/m<sup>2</sup> given intravenously over 1 hour on day 2.

### *Supportive care*

Blood samples were collected daily for full blood count (FBC) and biochemistry.

Red cell transfusions were given if the patient had a haemoglobin (Hb) level less than 80g/L and platelet transfusions when the platelet count fell below 10 x 10<sup>9</sup>/L or if there were signs of haemorrhage. All blood products were irradiated.

All patients received mouth care and infective prophylaxis with norfloxacin 400mg orally bd, aciclovir 400mg orally tds, fluconazole 200mg orally bd, chlorhexidine mouthwash 10mls qid and nystatin oral solution 1ml qid.

Granulocyte colony-stimulating factor (G-CSF) at 5mcg/kg per day was administered from day one after stem cell transplantation until the Absolute Neutrophil



Count (ANC) was greater than  $0.5 \times 10^9/L$  for two consecutive days.

Veno-occlusive disease prophylaxis was with enoxaparin 40mg SC daily.

Mucosal pain was initially treated with oral paracetamol and oral morphine. If this was insufficient continuous intravenous morphine was administered using a pump.

### Post-transplant HITH care

All patients suitable for HITH care were provided with an outpatient management plan prior to discharge with details of the care to be provided by the HITH team and indications for contacting the HITH nurse or attending the haematology day ward or the emergency department.

HITH nurses attend patients daily to assess their progress and administer therapy. Therapies commonly administered by HITH staff include intravenous antibiotics and subcutaneous injections such as G-CSF and/or enoxaparin. At each daily visit the HITH nurse performs a structured clinical assessment which records details of a relevant history and examination including: assessment of symptoms, temperature, pulse, blood pressure, central venous access, oral mucosa, skin integrity, oral intake, fluid balance, urine output and weight. All toxicity grading is performed according to World Health Organisation (WHO) guidelines with the results recorded on a post-transplant flow sheet.

Post-transplant investigations (daily FBC, biochemistry and urinalysis) are also attended by the HITH nursing staff. The results of these routine investigations are then reviewed by HITH nurses, who may then arrange outpatient transfusion of red cells or platelets as necessary. Any clinical concerns that the HITH care nurse has are discussed with the attending haematologist, who may choose to review the patient as an outpatient as necessary. Clinical problems arising after working hours are addressed by the medical registrar on-call and by the attending haematologist. HITH patients requiring admission for inpatient care are admitted to the haematology ward under the care of the attending haematologist.

## OUTCOME MEASURES

For the purpose of this audit descriptive data were collected on age and gender, diagnosis, transplant conditioning, inpatient length of stay (pre-discharge and post-readmission), and duration of HITH care. Details of a series of outcome measures that may be used as de-facto indicators of the safety and feasibility of HITH care were collected. These included patient-initiated telephone calls, unscheduled staff call-outs, incidence of unplanned readmission to hospital, reasons for readmission, morbidity and toxicity (according to WHO criteria), mortality (during admission and transplant-related mortality at day 100), incidence of infection, antibiotic use, incidence and severity of mucositis, incidence of

renal failure, bleeding incidence and severity (according to WHO criteria) and transfusion requirements.

## RESULTS

### Patient characteristics

Between March 2001 and June 2003, 33 patients underwent autologous HSCT for lymphoma or multiple myeloma at the Hunter Haematology Unit. Of these, 16 were judged to be suitable candidates for HITH care post-transplant and were offered the option. Unfortunately, after consenting to HITH care three patients subsequently developed medical complications necessitating inpatient care for the duration of the treatment episode. The data presented is on the 13 transplant recipients who received HITH care following autologous HSCT. Of these candidates 10 were males and three were females, giving a 10:3 ratio of males to females. The average age was 48 years (sd14.83). For the transplant recipients not offered HITH care, this decision was made on the following grounds, six patients lived outside the agreed geographical area, six were medically unstable, three lived alone, one patient was assessed to be non-compliant with therapy and one patient was excluded due to an unsuitable home environment.

From the 13 patients treated under the HITH program, nine received a LACE-conditioned transplant for lymphoma and four received a melphalan-only conditioned transplant for myeloma. Patients with lymphoma can be further classified as two with diffuse large cell non-Hodgkins lymphoma (NHL), two with follicular NHL, three with Hodgkins lymphoma; and two with a diagnosis of other forms of NHL (unclassified and small cell).

Table 1: Patient demographics

Age	M/F	Diagnosis	Chemotherapy regime	Readmission required Y/N
52	M	HD	LACE	N
59	M	NHL	LACE	N
50	M	NHL	LACE	Y
32	M	Lymphoma	LACE	Y
55	M	NHL	LACE	Y
20	M	HD	LACE	Y
59	M	NHL	LACE	Y
22	F	HD	LACE	Y
62	M	NHL	LACE	Y
66	M	Myeloma	Melphalan	Y
51	M	Myeloma	Melphalan	Y
54	F	Myeloma	Melphalan	Y
41	F	Myeloma	Melphalan	Y

### **Stem cell inoculum**

Of the 13 patients who underwent autologous HSCT for multiple myeloma or lymphoma, the mean stem cell inoculum was 8.3 x 10<sup>6</sup>/kg (range 1.8-20.2 x 10<sup>6</sup>/kg).

### **Engraftment**

Patients that underwent LACE conditioning achieved neutrophil engraftment (0.5x10<sup>9</sup>/L) by day +10 (range day 9-12) and platelet engraftment (unsupported platelet count > 50 x 10<sup>9</sup>/L) by day +24 (range 13-35). Patients conditioned with melphalan generally achieved neutrophil engraftment by day +11 (range day +10-13) and platelet engraftment by day +20 (range 15-25).

### **G-CSF use and transfusion support**

Patients undergoing LACE conditioning received an average of 11 daily doses of G-CSF (range 9-14 doses), whereas patients receiving melphalan conditioning received an average of 12 doses of G-CSF (range 10-13 doses).

The majority of transplant recipients did not require significant blood product support. LACE-conditioned transplant recipients required an average of 3 units of packed cells (range 1-9) and 18 units of platelets (range 8-32) while melphalan conditioned transplant recipients required 3 units of packed cells (range 2-4) and 9 units of platelets (range 4-12).

### **Transplant-related Toxicity**

Autologous HSCT with either LACE or melphalan conditioning was generally well tolerated. The major toxicity of transplantation was febrile neutropenia, which accounted for the majority of readmissions but did not result in the death of any transplant recipients. No patients required intensive care admission. Of those patients who underwent a LACE autograft, six patients experienced grade 1 to grade 3 mucositis (mean grade 1), while all four patients who underwent a melphalan autograft experienced greater than grade 2 mucositis (mean grade 3). Of all the patients who underwent HITH care, only five experienced any bleeding complications, and in all cases this was mild (grade 1). Only one patient developed renal dysfunction with a transitory rise in the serum creatinine greater than 120umol/L.

There were no deaths in the HITH cohort. All 13 patients managed at home on the HITH program were alive on day +100 post-transplant with none demonstrating evidence of disease progression.

### **Discharges from hospital**

Two patients (15%) were discharged from hospital for HITH care on the day of transplant; seven (53%) were discharged on day +1 post-transplant; one (7.6%) on day +2 and three (23%) left hospital on or after day +3.

### **Readmissions following HITH care**

Eleven of the patients (84.6%) managed on the HITH program required readmission to the haematology unit within 7 days of discharge from hospital. Febrile

neutropenia / sepsis accounted for 81.8% (n=9) of these readmissions. Four of these patients did not have a pathogen identified though two presented with symptoms of severe mucositis. No evidence of line infections or other specified sources were confirmed though blood cultures were positive in five cases. Two patients had blood cultures positive for strep viridens, one for E coli, one for staph aureas, and one for a coagulase negative staphylococcus. The readmission length of stay ranged from 5 to 12 days (mean 8.5) and all patients were discharged to their own homes at that time.

Of the remaining two patients requiring readmission to hospital: one patient was admitted for treatment of a venous thrombosis and one for management of severe (grade 4) mucositis. All patients discharged for HITH care on or after day +3 post-transplant required readmission, suggesting that this group of patients may not have been appropriate candidates for HITH care.

## **DISCUSSION**

HSCT is an intensive treatment modality with a 100 day treatment related mortality (TRM) of 1-50% depending on the type of transplant. In the past, the toxicity associated with HSCT has mandated inpatient care, with lengthy inpatient admissions. Developments in transplantation and supportive care have made outpatient care a possibility. The combination of antimicrobial prophylaxis, simplified pre-transplant conditioning and non-myeloablative regimens has made possible the performance of HSCT entirely on an outpatient basis. While only a small number of studies of outpatient HSCT have been done, the results of published studies suggest that outpatient HSCT can be achieved with equivalent efficacy as inpatient transplantation and without an increase in morbidity or mortality.

This report suggests that autologous transplantation using a HITH care delivery model is feasible and is safe for appropriately selected patients (40% of our patients) with lymphoma and multiple myeloma. Our results also suggest that there may be merit in exploring HITH models of post-transplant care as a means for increasing patient satisfaction with care and reducing the costs of care.

## **LIMITATIONS**

There are a number of limitations to this report. We report only a small cohort of HITH care patients unmatched to IHC episodes and as such can make only limited conclusions regarding adverse events and mortality associated with HITH transplantation care. Patients were also not randomised between inpatient care and HITH care and indeed the rigorous selection criteria for HITH care mean that a selection bias is inevitable with younger, healthier, more compliant patients with less co-morbidity more likely to be offered outpatient care post-transplant. Finally, we also did not measure costs to families, carers or the community and as such are unable to explore the

degree of cost shifting that occurs with HITH transplantation.

Whether our (ongoing) experience has any relevance to other Australian transplant centres remains to be shown. Newcastle is a small city (population 470,610) and traffic congestion is mild compared with major metropolitan centres. Whether HITH transplantation care can be delivered successfully in other centres would require consideration of local factors, including transport infrastructure, hospital and transplant unit design and organisational structure of outpatient and home care services. Indeed, great care must be taken in extrapolating from studies of HITH care, such as ours, as there may be significant differences in conditions, in the model of HITH care, in the financial and structural organisation of health services and in the data gathered and reported by the researchers (Ioannides-Demos et al 2001, KPMG Consulting 1999).

The majority of participants in our HITH post-transplant program required readmission to hospital (n=11, 84.6%). In most instances this was because of the development of febrile neutropenia. Importantly, none of the patients experienced any clinical consequence as a result of this infection and all were subsequently discharged from hospital following engraftment. This is an important finding as unexpected return to hospital during HITH care can highlight difficulties with eligibility criteria, care choice, skill of assessor, and poor initial choice of therapy or misdiagnosis or can be an indicator of an effective monitoring system, whereby vigilant clinical supervision prevents an adverse negative outcome (Montalto et al 1999).

While our readmission rate is substantially higher than that reported in other studies, the absence of any major toxicity would suggest that our results may be explained by the absence of an outpatient care protocol for the management of febrile neutropenia and by a liberal readmission policy (Ruiz-Arguelles et al 1998; Jagannath et al 1997).

While HITH care following HSCT appears to be an attractive option, transfer of care to the outpatient setting is not without its problems.

Compliance of patients with medical treatment cannot be assured in the home with the same degree of certainty that it can in hospital and earlier hospital discharge following HSCT may be associated with a delay in resumption of oral energy intake and discontinuation of intravenous (IV) fluids (Stern et al 2000; Kane 1995). Research from outpatient HSCT programs in the United States of America has also found that loss of appetite, fatigue, continuous low-grade nausea and insomnia may frequently complicate outpatient care following transplantation, despite increased patient and caregiver satisfaction with outpatient care (Lawrence et al 1996). Indeed, evidence that outcomes may be no better, or even worse, than inpatient care has led some to express concern that the impetus for change to outpatient models of care has

more to do with cost shifting than real concern for patient welfare.

Given the intensity of treatment, the presence of predictable neutropenia, the likelihood of adverse effects related to transplant conditioning and the site of care delivery, there will always be a predictable level of expected and unexpected intervention associated with HITH care for autologous HSCT. Enthusiasm for HITH care must therefore be tempered by recognition that HITH programs require a minimum level of infrastructure support including, effective incorporation of pathology services, 24-hour emergency care and telephone support, a rigorous system of monitoring and evaluation and a structured process for the return of HITH patients to hospital. Such programs also require the availability of nursing expertise for outpatient care, adequate communication between medical and nursing staff and between inpatient and outpatient services and the availability of an outpatient clinic able to provide medical assessment, transfusion services, intravenous infusions and facilitated admission where appropriate. It must also be stressed that outpatient care cannot be offered to all patients and that a careful selection process is critical. Only those who are compliant with therapy, able to attend outpatient follow-up, have a suitable home environment, have adequate support available 24 hours per day at home and have a reasonable educational level, are candidates for home care following transplantation.

Finally, as ambulatory / HITH care is a relatively new development in medical service delivery, it is vital that such programs be rigorously established and carefully monitored in order to maximise their benefits for patients and for government.

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# TRIALING COLLABORATIVE NURSING MODELS OF CARE: THE IMPACT OF CHANGE

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## ABSTRACT

### *Objective:*

The aim of the project was to develop and trial a nursing Model of Care (MoC) and devise a framework to investigate the impact of nursing staff mix on patient outcomes and job satisfaction (nurses).

### *Setting and Subjects:*

In 2001-2002 a pilot project was undertaken to explore issues related to the delivery of patient care by nurses on two medical inpatient wards, one acute and one subacute, at a referral teaching hospital in New South Wales (NSW), Australia. The framework employed was an adaptation of, and based on, the Clinical Practice Improvement (CPI) model developed by NSW Health.

### *Primary Argument:*

Countries across the world are seeking solutions to a shortage of registered nurses and their ability to sustain quality care services. It becomes imperative that organisations develop strategies to attract and retain nurses in the health care system.

### *Conclusions:*

Results of the project highlighted areas related to the quality of care delivery: clinical supervision; continuity of staffing; trust; employer of choice; more effective nurse to patient ratios; educational preparation; and recognition of prior experience.

## INTRODUCTION

There is clear evidence that the nursing shortage is worldwide. Countries including Australia, Canada, the United Kingdom and the United States of America are reporting significant difficulties in maintaining an adequate nursing workforce. All countries are seeking solutions and reporting the impact of shortages on both public and private health care providers' ability to sustain quality care services (Forrester and Griffiths 2001). Forrester and Griffiths (2001) report that the initial response to the shortage, including changes to staff mix, has impacted on how health services deliver care but not on relieving the corresponding 'ever increasing burden on the provision of nursing care' (p.59). The implications of who should deliver care and how such care should be organised (models of care) has been highlighted by: (i) alteration to staff mix and introduction of different levels of skilled and unskilled care providers; (ii) the accompanying increase in the number of nurses required with a rise in part-time employment; and (iii) the expanding role of registered nurses.

Johnstone and Stewart (2003) highlight the fact that Australia like other countries is facing a 'crisis of recruitment and retention of nurses' (p.240), compounded by an insufficient supply of new graduate nurses to meet workforce demands. Such an imbalance of supply and demand further supports the need to develop models of care that include different levels of nurse (Nay and Pearson 2001).

A Model of Care (MoC) or nursing practice model (NPM) for the purpose of this paper refers to an operational model for redesigning nursing practice for the provision of patient care in an organisational setting, specifically at a clinical services unit level (ward). Such a MoC represents the structural and contextual dimensions of nursing practice. Furthermore, an explicit or implicit MoC governs the manner in which nurses organise work groups, communicate with work group members and with

other disciplines, interact, make decisions, and create an environment within which nursing care is delivered among care providers, and specify communication and coordination patterns necessary to support care.

The variation in nursing models of care arises because the term is often ill defined. For some it is based on a governance structure, others as a compensation scheme while others regard 'the term as reflective of a particular strategy of assigning patients to nurses' (Brennan et al 1998, p.27). Motivation to build a MoC stems from the need to attract and retain nurses; contain costs; increase nurses' job satisfaction; produce efficiencies in the delivery of care and, maintain a quality service. Patient outcomes currently focus less on morbidity and mortality and more on measures of patient centred issues such as perceived health status and process indicators including length of stay (LOS) (Weisman 1992).

## BACKGROUND

A public hospital and principal teaching facility, St Vincent's Hospital, Sydney, NSW, provides a comprehensive range of inpatient, ambulatory and diagnostic services to the people of South Eastern Sydney and beyond. St Vincent's is affiliated with a number of universities, and has an average hospital occupancy rate over 90% with around 30,000 admissions per annum (including day procedures) and an inpatient bed capacity of approximately 320. In total, around 800 nursing

professionals are employed across St Vincent's Hospital, with over 80% of these nurses involved in the provision of direct patient care.

As a result of national challenges associated with a changing nursing workforce, St Vincent's Hospital, undertook a proactive role in exploring potential strategies to support safe delivery of patient care while sustaining professional autonomy and professional development for nurses. Initially, this involved a Nursing Workforce Forum in March 2001, followed by the establishment of a Steering Committee to plan and trial a collaborative 'shared care' model on two acute care inpatient wards within the hospital. Hence, the overall goal of this project was to explore the impact of a collaborative nursing MoC on patient outcomes and professional nursing practice through a trial implementation.

While acknowledging the challenges associated with nursing workforce issues, the objectives of trialing the collaborative model were defined as supporting and ensuring the delivery of safe and quality care to patients while at the same time enhancing professional satisfaction and professional development opportunities for nursing staff.

## LITERATURE REVIEW

### *Restyling the Practice Environment*

While organisations expend vast amounts of money to restructure the delivery of health care, nurse leaders are

**Table 1. Examples of nursing care delivery models**

Nursing care delivery models	Definition
Patient focused care	<i>A model used in the 1990s whereby RNs were designated as care managers with expanded roles including various assessment procedures, taking blood and ECGs. These RNs were usually assisted by unlicensed assistive personnel (UAP) (Seago, 2001). The aim of the model 'patient-focused care' was to create a delivery system to improve customer satisfaction and decrease costs (Burns 1998).</i>
<i>Example:</i> Baptist Hospital of Miami model of professional accountability	Based of Watson's theory of Transpersonal Caring. Watson's theory involves caring as central to the nursing role as 'it is our humanity that both wounds us and heals us, and those whom we serve' (Clark 2004, p.106).
Primary or total nursing care	<i>Usually consisted of RNs only providing all direct care to the same patient throughout the patient's stay in hospital and in some cases when they were readmitted (Seago 2001).</i>
<i>Example:</i> Individualised care model	Based on assessment of the correspondence between nursing activities and the patient's perceptions of individuality in care. This model was described and tested using structural equation modelling by Suhonen et al (2004).
Team or functional nursing care	<i>A model using the RN as a team leader and other classifications of nurses to perform activities of daily living (ADLs) such as bathing and feeding (Seago 2001).</i>
Magnet Hospital environmental/shared governance	<i>Based on shared decision making by RNs and managers. Features include: collaboration with other health care providers and RN autonomy with control of practice (Seago 2001).</i>  The Magnet designation means that the hospital has created an environment that supports nursing practice and focuses on professional autonomy, decision making at the bedside, nursing involvement in determining the nursing work environment, professional education, career development and nursing leadership
<i>The quality-caring model (acute care)</i>	<i>Evidence-based practice process is merged with the caring processes of nursing (Duffy 2004).</i>
<i>Model for promoting process engagement (chronic illness)</i>	<i>A unifying model involving a process in which explanatory modelling, mutual goal setting, and motivational strategies are used to facilitate a client-focused approach to making sense of health information, sustaining health behaviour change, and managing transitional care needs within the context of chronic illness (Cumble et al 2004).</i>

being constantly challenged to 'create practice environments that foster multidisciplinary collaboration, professional development, and a culture of safety' (Ponte et al 2004, p.173). How factors in the practice environment are linked to patient outcomes is the subject of much research (McGillis-Hall et al 2004; Aiken et al 2002a; Aiken et al 2002b; Ritter-Teitel 2002). The research into nursing care and nurses supports the argument that nursing care and the nursing practice environment makes a difference in patient outcomes (Ponte et al, 2004; Hall et al 2004). Before undertaking great changes (restructure) to how nurses deliver care, an organisation should develop, implement and evaluate such nursing practice models, or models of care. Evaluation reflects the reasons for restructuring which can range from patient satisfaction to perceptions by staff of the practice environment such as communication and shared responsibility (Kinneman et al 1997). An important aspect in any restructuring is the change process itself.

### ***Definitions of models of nursing care delivery***

How nurses deliver care can be described in a number of ways, including the use of descriptors such as functional or team nursing. Briefly, team nursing usually comprises a 'leader' with major responsibilities for coordinating personnel, resources and patient activities for that shift or for a defined period of time. Functional nursing focuses on the assignment of tasks in either bulk or series rather than the assignment of comprehensive care to patients (Coakley and Scoble 2003). Examples of models of nursing care delivery are summarised in table 1.

### ***Measures of nurse staffing and models of nursing care delivery***

Research carried out during the 1980s, 1990s and early 2000s has produced mixed results in relating skill mix and models of care delivery to patient outcomes. According to a number of researchers, increasing skill mix has been associated with decreasing falls, length of stay, postoperative complications, nosocomial pneumonia, pressure ulcer rates, urinary tract infection, and postoperative infection (American Nurses Association Network Inc 2000, 1997; Kovner and Gergen 1998; Lichtig et al 1999). While other studies found skill mix to be unrelated to mortality (Robertson and Hassan 1999; Mitchell and Shortell 1997; Silber et al 1995; Zimmerman et al 1993); treatment problems; postoperative complications; unexpected death rates; or unstable condition at discharge (Wan and Shukla 1987). Similarly, in studies conducted in the 1980s and early 1990s, in which primary (all RN) and team (skill mix) nursing care delivery models were compared, there was no relationship between the percentage of RNs and quality of care as reported in the nursing notes (Wan and Shukla 1987), or between RN-to-patient ratio and incidence of falls (Tutuarima et al 1993).

### ***Instigating change***

To achieve a relatively smooth transition when introducing change, it is advisable that the team responsible for implementing new nursing practices or a MoC develop guidelines and work within a change management framework. Curtis and White (2002) explain that because change can disrupt the 'status quo' or balance within a group, resistance becomes inevitable. The reasons for individuals' resistance to change and an acceptance for the need to change range from increased stress; denial; self interest; lack of understanding; trust and ownership; uncertainty; motivation; and personality. Strategies for reducing resistance centre on slow introduction; participation; psychological ownership; education; facilitation; and development of trust (Curtis and White 2002; Fyffe and Fleck 1998).

Therefore, devising a program for change includes the need to understand the setting where the change will take place; gain organisational support; evaluate current practice and engage staff in the process (Wright and McCormack 2001). McCallin (2001) emphasises teamwork as an essential strategy defined by a common cause, which includes: acknowledgement of professional contributions; skills mix; recognition of the significance of interactional relationships related to the processes of communication; co-ordination; cooperation; and joint thinking. McQueen (2000) believes the essential ingredients for successful implementation include identifying the level of involvement of all participants; clarifying the function; and describing the different types of expected relationships.

## **METHOD**

A collaborative 'shared care' model on two acute care inpatient wards

Within the original workforce forum participants (nurse clinicians) articulated a preference for a collaborative 'shared care' model. Essentially, this was described in practical terms as being a model whereby teams of staff were allocated to a specific group of patients with ward coordination led by the Nursing Unit Manager (NUM) or Team Leader with an 'in-charge' of shift role. The proposed collaborative model contained elements of patient allocation and team-nursing models of care in that it supported experienced nurses leading a body of less educated and technically skilled nurses, while maintaining a leadership and patient management role.

The two principles of the devised MoC were to:

- (i) allocate a dedicated 'care partner' to support less skilled members of staff; and
- (ii) maintain continuity of care for the patients while both care partners receive handover for their patient group, and allocate responsibility for care delivery within the group.

A key component of the MoC was the flexibility in implementation allowing patient and staff needs to be

addressed on a shift by shift basis. The core areas identified for development for the project included: rostering, flexibility and skill mix issues; education, culture and attitudes; communication structures and team impacts; role delineation; and accountability. Active involvement and effective communication from the participating clinical teams was identified as essential in supporting ownership of the model, its implementation review processes and ongoing development.

The trial plan was developed within a quality framework, an adaptation of the Clinical Practice Improvement Model (CPIM), and utilised the principles of change management.

Prior to implementation a number of extraneous factors were recognised as having potential influence on the trial and its outcomes (eg. differentiation in staffing profiles, ward activity and patient acuity levels). The need for ongoing review of trial elements in conjunction with the participating clinical teams was crucial to supporting the continued development of the collaborative MoC. In addition, a consistent and comprehensive approach to the trial was realised with the recruitment of a full time project assistant. The initial task involved the development of an action plan for the project, based upon the principles of the CPIM as illustrated in figure 1 (NSW Health 2002).

### Planning Phase

1. to introduce the project officer (change agent) to the participating teams;
2. outline the project objectives, plans and timelines;
3. provide a forum to inform the teams of the role and responsibilities of both the project officer and the participating teams; and
4. determine expected outcomes for each phase.

The nursing sensitive outcome measures to be considered were derived from the works of Ingersoll, McIntosh and Williams (2000); Spilsbury and Meyer (2001); and Barkell et al (2002); and included staff satisfaction; patient satisfaction (Kinneman et al 1997); patient injury rate; nosocomial infection rates and maintenance of skin integrity (American Nurses Association's Report Card, in Barkell et al 2002).

The areas of practice which also acted as quality indicators (patient hygiene; patient nutrition and hydration; pressure sores/skin integrity; intravenous therapy; discharge planning; pain control; education/rehabilitation; elimination and IV therapy) where nurses have demonstrated significant influence over patient outcomes were measured utilising documentation audits and pre and post trial comparisons. Workforce data were also identified as a contributing factor to nursing practice delivery and were subsequently included in data collection and analysis.

### Development phase

During this phase, the teams were presented with a proposed nursing MoC (NMoC). Process mapping was used to identify current nursing practice and possible implications of the proposed NMoC. These identified areas then formed the focus for the remaining education sessions. Participant involvement was encouraged and as the development phase progressed, both participating teams identified key elements for their unit-based NMoC.

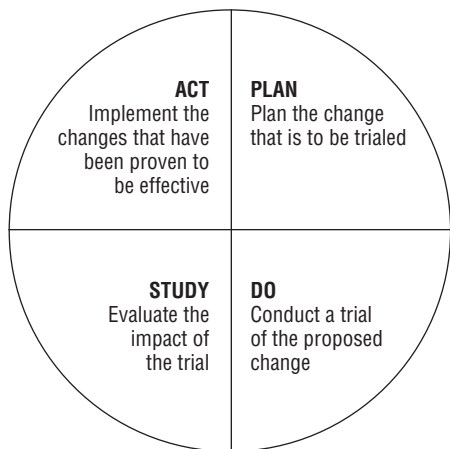
### Implementation phase

Primary data collection was through non-participatory observation. Initially the project officer made frequent observations throughout the day (2 to 3 times). As the teams became more confident in implementing the collaborative model these observations were decreased to once a day, reducing again to two to three times a week for the remainder of the trial.

The project officer also facilitated regular debriefing sessions with each team where emerging practice issues were identified and explored, thus promoting team ownership of the NMoC for their respective ward and patient populations. Feedback from these sessions indicated that staff were able to reflect on their current practice and consider the potential impacts of the collaborative model.

**Figure 1: The clinical practice improvement model**

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in an improvement?



The model involves the identification and diagnosis of a problem, measurement of the scope and size of the problem, identification of a number of interventions that may reduce the problem, implementation of the intervention(s) and re-measurement to ascertain whether the interventions have been effective. *The Clinical Practice Improvement Model (CPIM) taken from Easy Guide to Clinical Practice Improvement: a guide for health care professionals, 2002, p.4, NSW Health.*

The key aspects of the four phases (planning, development, implementation and evaluation) of the project are described in the following paragraphs.



## Evaluation phase

The conceptual framework for the evaluation relied on a number of assumptions: (i) the practice environment is crucial to effective implementation of the NMoC; and (ii) improvements in the environment should be associated with increased satisfaction for both patients and nurses. Therefore, the project officer during the implementation phase facilitated regular debriefing sessions with each team, where emerging practice issues were identified and explored, thus promoting team ownership of the NMoC for their respective ward and patient populations. Feedback from these sessions indicated that staff were able to reflect on their current practice and consider the potential impacts of the collaborative model. All aspects of nursing care illustrated in the clinical documentation, were subsequently audited for this trial. The main focus of this report is the process and outcomes of the nursing care efficiencies identified during the trial. Throughout the evaluation phase data was collected through non-participatory observation, staff satisfaction surveys and staff focus groups.

## FINDINGS

Overall, the staff implemented the agreed MoC with modifications made as the trial progressed to suit the individual needs of the participating wards. Following identification of the outcome indicators, data was collected for the trial period and compared to the same period in the previous year. This data served as a comparison to assist in evaluation of the effectiveness of the collaborative NMoC on nursing sensitive outcome indicators. The major themes affecting the NMoC delivery highlighted by the staff were: staff morale; bed management strategies; staffing levels; nursing skill mix; partnering of staff; planning and division of workload; communication (including handover); staff support and professional development; change; nursing issues/professional accountability; continuity of care; job satisfaction; and the shift co-coordinator/in-charge role.

Both passive and active resistance to change was encountered in participating teams. The application of change management principles to the process assisted the teams through this resistance. In order to reduce the impact of organisational factors on the model implementation, the nursing executive facilitated a reduced bed capacity on participating units and consistency in allocation of temporary staff during the trial. Professional scope of practice factors impacting on the trial involved participants who had experience in delivering nursing care within a patient allocation framework, and included a strong desire to avoid task allocation within the collaborative model as this was largely perceived as a retrograde step.

## CLINICAL OUTCOMES

Quality indicator data for the trial period from both wards was compared to data from the previous year as

follows: (i) reported incident/accident results indicated an increase in reported incident/accidents; (ii) reported pressure areas (cases) were unchanged in both the participating wards; (iii) infection rates were noted to have increased in each participating ward.

Clearly more sensitive measurement is indicated for further work to determine if there was an actual increase or if there had been an improvement in the reporting culture. The documentation audits conducted pre and post trial on each unit measured compliance of documentation with the identified standards of nursing practice. These included standards that were supported in the literature as areas of practice where nurses have demonstrated significant influence over patient outcomes.

Team A indicated improved compliance in documentation in all 20 standards, while Team B indicated improved compliance in four. Overall, the teams demonstrated 70% and 50% improvement respectively in compliance with documentation post trial implying benefits of a collaborative NMoC. Again, more sensitive or rigorous measurements are required to determine if the results are indeed an outcome of the trial nursing MoC or a result of the Hawthorn effect (Adair 1984; Brenner 2002; Mangione-Smith et al 2002; Woodman 1980).

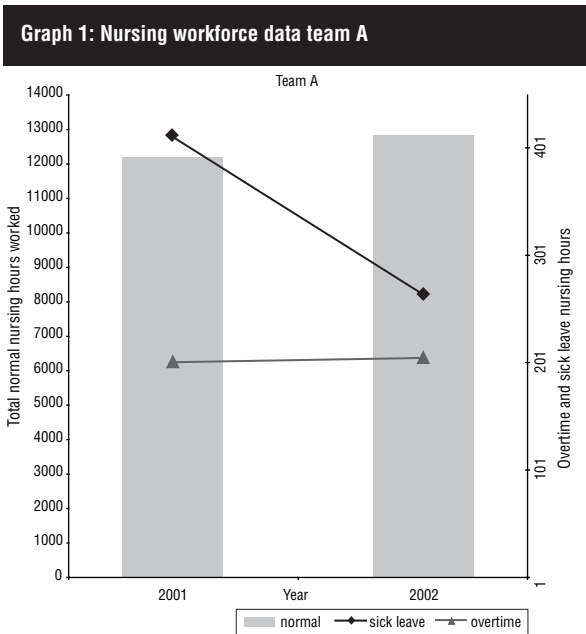
## CLINICIAN OUTCOMES

Clinician surveys were conducted pre, mid and post trial. Staff were asked to indicate on a scale of 1-10, the effectiveness of their skills utilisation in four (4) key function areas. The four key function areas were: patient care; communication; education and professional development; and professional issues. Common themes emerging from the comments documented on the clinician survey supported those from the observational data analysis and debriefing sessions. Through analysis of survey feedback, common themes impacting on each team's ability to progress implementation of the model were identified. These included skill level of nursing staff and reduced availability of experienced staff; ineffective communication; availability of nursing staff (both permanent and temporary); and lack of time for experienced staff to educate both less skilled staff and patients were recognised (Dreachslin et al 1999). Although the limitations of the clinician survey included a relatively small sample size and poor to fair return rate, the data provided useful information to highlight the general level of satisfaction and sense of skills utilisation that existed within the participating wards. This information was then used by the teams to work through modifications to the MoC and make recommendations to hospital management.

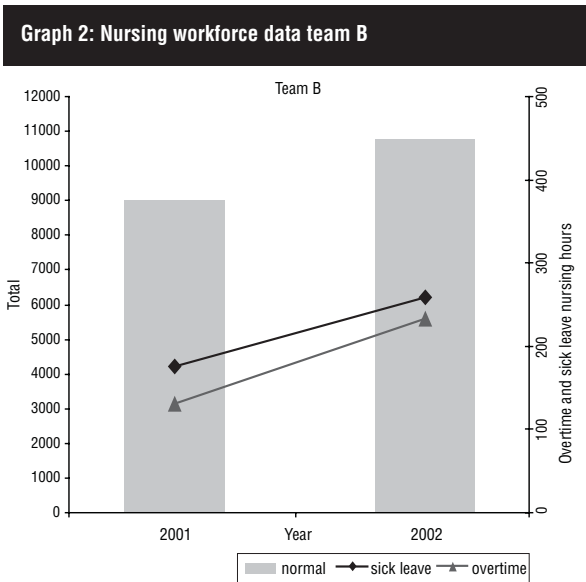
### *Workforce data*

Workforce related data for the trial period were collected and compared with the same data for the equivalent timeframe during the previous year (graphs 1 and 2). The data were collected to provide insight into the

nursing skill mix and staffing levels worked during this time frame. Data collected were the number of hours worked and full time equivalent (FTE) positions filled for each category of nurse.



Comparison of total nursing hours (primarily Y axis) worked during the pilot (2002) with the same period 2001 as plotted against overtime and sick leave nursing hours (secondary Y axis). The most significant result is the reduction in sick leave taken.



Comparison of total nursing hours (primarily Y axis) worked during the pilot (2002) with the same period 2001 as plotted against overtime and sick leave nursing hours (secondary Y axis). The results for team B suggest an increase in both sick leave and overtime.

The demographics were restricted to the qualification of nurses and hours worked within the trial period (eg. RN, EN, CNS), and did not include the level of experience of the nurse. Subsequently, the data does not provide accurate information about skill mix related to level of experience

nor does it include data on the hours required and requested, only on the hours worked in each unit. Between the two participating wards, the nursing sensitive outcome indicators generally identified similar results with between 50-70% improvement in documentation compliance, a 100-400% increase in reported infection incidents and a 35-71% increase in reported accident/incidents in the post trial period, when compared with the same time period during the previous year.

However, the staff sick leave rate demonstrated a 46% increase in one unit with the other reflecting a 31% decrease during the trial period (graphs 1 and 2). Although the reasons for these mixed findings were not clearly identified, it is interesting to note there appeared to be some correlation between sick leave rates and the perception of the impact of change, combined with each team’s approach to incorporating these changes into practice.

## SUMMARY

A nursing MoC within a shared care framework was developed with clinical teams on two inpatient wards and implemented on a trial basis. Pre-existing factors that impacted on the trial were identified as staffing (shortage), poor skill mix, low morale and high activity on the wards. These are all identified in the literature as agents that cause resistance to change and contribute to a decline in job satisfaction.

Different strategies were implemented to address these issues, including incorporation of principles of change management in all phases of the development and implementation of the NMoC, the closure of inpatient beds to reduce the clinical workload demands, and the involvement of hospital management to work with the teams to develop strategies to address the major issues facing the wards.

The clinical teams identified a NMoC within a shared care framework that facilitated a supportive environment for the staff while maintaining a high standard of patient care.

A key component of the NMoC is the flexibility in implementation allowing patient and staff needs to be addressed on a shift by shift basis. Although the benefits of this were demonstrated throughout the trial period, it was evident that clear guidelines around implementation were necessary to ensure consistency in the application of the NMoC.

Following the completion of the NMoC trial both teams have retained elements of the original model and have continued to further develop specific aspects in response to service needs. Although the trial results suggest that the revised NMoC had a direct impact on patient care delivery and professional nursing practice, exploration of the potential for formal research of the

relationship between the NMoC and nursing sensitive outcome measures is indicated.

In addition to ongoing progression of the collaborative model a number of organisational strategies have been implemented to address nursing workforce and scope of practice issues. These include employment of undergraduate student nurses as assistants in nursing (AINs); recruitment of experienced nurses directly into clinical nurse specialist (CNS) roles; increased employment of enrolled nurses (EN) across clinical areas, review and extension of clinical placements for trainee enrolled nurses (TENs) in acute care areas, and participation in state-wide initiatives that reconnect nurses back into the workforce (NSW Health 2004).

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# DEVELOPING THE FUTURE NURSE LEADERS OF FIJI

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**Key words:** Fiji, nursing leadership, leadership education, clinical governance, change

## ABSTRACT

### **Background:**

Nurse leaders in Fiji are currently involved in meeting the challenges of being at the forefront of an AusAID supported Health Sector Improvement process. Fiji is experiencing the same shortages of health professionals (including nurses) as is occurring internationally, while simultaneously striving to improve the quality of its health services.

### **Primary argument:**

This paper provides information about the current situation in relation to health services in Fiji, and describes strategies being undertaken by the nurse leaders of Fiji to meet the challenge of leading an exciting reform process. James Cook University, School of Nursing Sciences, has been privileged to support the provision of contemporary leadership and management education for current and future nurse leaders in the Fiji Health Sector as a component of a current education program to educate registered nurses to bachelor level. This paper will provide an overview of the current Fiji Health Sector Improvement Program, with a particular focus on the preparation of nurse leaders.

### **Conclusion:**

There is an ongoing need to understand beliefs and values, and styles of interaction and communication, and indeed, ideas about time. With collaboration between Australian academics and Fiji tutors from the Fiji School of Nursing, the program appears to be remarkably successful.

## INTRODUCTION

**M**anaini was the second woman in the village to become a teacher, and this completely changed her status in the family and in the village. Other girls in the village had become nurses but at that time Amelia [Manaini's sister] saw that teaching was regarded as the highest achievement (Amratlal, Baro, Griffen and Bala Singh 1975, p.53).

The Fiji Health System is currently engaged in an unprecedented reform process. Nursing leaders are key participants in managing much of this change. The Australian Government, through the Australian Agency for International Development (AusAID), is involved in the development of the health industry in Fiji through the Fiji Health Sector Improvement Program. This is to be conducted over five years and commenced in 2003. Given the important contribution of the nursing workforce to health service delivery in Fiji, the success of the program depends to a great extent on the effectiveness of the nurse leaders. Therefore it is essential to prepare nurses who are destined to be leaders of the future with the skills required of contemporary leaders in health. This paper is a review of what is happening, and what is possible, for the contemporary nurse in Fiji who is required to provide leadership in a developing country involved in a period of profound change.

### **Preparing for reform**

Within an environment of rapid development and change, the necessity for careful planning and execution of health services is paramount. In May of 2003, the Fiji Ministry of Health created a combined role of Director of Nursing and Director of Health System Standards (DNHSS). This role involves overall responsibility for nursing practice in Fiji, and includes the registration of all nurses in the country. As Director of Health System Standards, the incumbent is also responsible for coordinating the implementation of all aspects of clinical governance throughout the Fiji health services, including

continuous quality improvement, risk management policies and practices, professional performance of all staff employed by the Fiji Ministry of Health, and consumer satisfaction with the delivery of health services. Preparation for the latter role has been a process which includes the involvement of a James Cook University (JCU) School of Nursing Sciences academic, who acts as a consultant and has provided support to the DNHSS in developing this aspect of the role.

The development of the role is in accordance with the idea that nurses, of all the health professionals, are multi-skilled and are the most likely group to both plan creatively and to mobilise their forces to achieve real outcomes associated with improved patient or client care. The decision to create a new role of Director of Health System Standards is consistent with international movement in health care and health care delivery toward improvement in the quality of health care. Scally and Donaldson (1998, p.1) provide a clear direction for the future noting that 'a commitment to deliver high quality care should be at the heart of everyday clinical practice'.

During 2003 and 2004, the Fiji Ministry of Health in conjunction with the World Health Organisation commissioned a number of consultants to review different aspects of health care delivery in Fiji. Included in these reports were a plan for the overall development of clinical services (O'Connor 2003), development of a quality framework for developing standards in the Fiji Health System (Stewart 2004) and reviews relating to the education, recruitment and retention of the nursing workforce across the country (Driu Fong 2003; Usher 2003). Clearly, a plan to develop a culture of continuous improvement of health service delivery was developing. Indeed, the mission statement for the Fiji Ministry of Health Strategic Plan 2003-2005 is 'To provide quality health services for the people of Fiji'.

### Challenges in Fiji

Despite the international community's familiarity with a vision of magnificent beaches, glorious scenery, and friendly people and more recently, a reputation for political upheaval, Fiji is neither the ideal nor the worst of environments. It is a rapidly developing country. The Fiji Islands are, in fact, a republic covering 18,000 square kilometres, with a population of some 814,000 people living on more than 300 islands. In terms of health care planning and delivery, this particular geography poses major challenges for providing services across such a large oceanic population (Fiji Ministry of Health 2003). There are currently about 1,750 nurses and 300 doctors to deliver the care (Usher and Lindsay 2003). These doctors and nurses work in one of the seventeen subdivisional hospitals, an area medical hospital, one of the two national hospitals, or in one of the many health centres and nurse's stations located throughout the islands.

The country is experiencing similar shortages of health professionals as is happening globally. Migration of

health professionals out of the country, including nurses, is of particular concern, especially so since the recent political instability in Fiji (Driu Fong, pers. com January 2004). This shortage is occurring while Fiji deals with health challenges which are not dissimilar to those of the developed world.

These health challenges include an increasing incidence of chronic and degenerative diseases such as: diabetes, heart disease; hypertension; stroke; cancer; mental health problems; and communicable diseases such as leptospirosis, HIV/AIDS and sexually transmitted diseases. Instances of people suffering from dengue fever, lymphatic filiarisis, measles and rubella are also increasing, as are levels of traumatic injury, and domestic violence and substance abuse (Fiji Ministry of Health 2004). Therefore, it is imperative that health care leaders provide good governance to respond to the health needs of the people of Fiji.

### Clinical governance in health care

In order to achieve their mission, Fiji faces the same challenges being experienced across the world. The challenge is how to transform such generic mission statements into real improvement in health outcomes for the people of Fiji. As Scally and Donaldson (1998, p.2) note, the achievement of quality in clinical care has always 'engendered a multiplicity of approaches' with universal definitions difficult to achieve and the dangerous temptation existing to claim that 'clinical quality' is a term that is too subjective and therefore not useful. Fortunately, the World Health Organisation has been particularly helpful in exploring the idea of improving clinical care by taking the idea of improvement in care through clinical governance, and then dividing 'quality' into four specific areas.

Clinical governance is a way of addressing issues associated with the quality of health care. It has been defined as 'a system through which...organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish' (Scally and Donaldson 1998, p.2). The four areas under which the World Health Organisation considers clinical governance are: professional performance (which is concerned with the technical quality of care); resource use (about efficient use of all resources including both human and material); risk management (about the risk of illness or injury directly associated with or caused by the service provided); and patients/clients/consumers' satisfaction with the service provided. Clinical governance serves to 'consolidate, codify, and universalise often fragmented and far from clear policies and approaches, to create organisations in which...final accountability rests with the chief executive of the health organisation...and daily responsibility rests with a senior clinician' (Scally and Donaldson 1998, p.2).

Good clinical leadership, then, is the fundamental foundation on which successful governance rests. The

link between good governance and good leadership is about leaders not only developing strategic thinking and better management skills (Clark and Smith 2002), but is also concerned with leaders having followers committed to a vision for the future of health care delivery (Nicholls, Cullen, O'Neill and Halligan 2000). The strategy which is the subject of this paper has been designed and implemented to contribute to achieving those aims in Fiji.

The challenge for Fiji is to take a similar approach to quality improvement to that which is occurring internationally. Teal (1996, p.44) notes that leadership and management take 'exceptional, sometimes heroic people to do it well'. The nurses of Fiji are meeting the challenge of being exceptional. One of their major strategies is a systematic, sustained program of learning which includes contemporary leadership and management education. As Courtney, Yacopetti, James, Walsh and Montgomery (2002) so clearly point out, relevant education for nurse leaders continues to be a topic of strong debate. Although there appears to be substantial correlation between educational levels and leadership effectiveness, just what this education needs to be remains contentious. Certainly there are core skill sets that people in nursing management and leadership positions require, and the program in Fiji takes account of such knowledge and skills as strategic planning, human resource management, financial management and quality management, as well as developing the leadership attributes that will be discussed further in this paper.

### Nursing leadership in Fiji

Nursing has evolved in Fiji from an initial nurse education program commenced in 1893, through various styles and stages of nursing training. Currently, the Fiji School of Nursing in Tamavua graduates approximately 125 nurses each year to diploma level. A private School of Nursing also commenced nurse education in 2004, with a JCU Fiji Graduate as Principal Nurse Educator, and with an eventual planned intake of 100 students per year.

Improved nursing education is a crucial component of the Fiji Health Sector Improvement Program. A key objective identified by the Fiji Ministry of Health is the 'management and development of a health workforce to enhance the delivery of quality health services' (Fiji Ministry of Health 2003). The JCU School of Nursing Sciences is currently collaborating with the Director of Nursing/Director of Health System Standards, the Fiji Ministry of Health and the World Health Organisation to strengthen the nursing educational foundation so that the nursing workforce is equipped to meet the needs of a country and a health service in transition.

The leaders in nursing in Fiji have identified that the bachelor level will be the basic requirement for nurses, and, to that end, are currently educating selected registered nurses at a tertiary level. In addition to this Bachelor of Nursing Sciences (BNSc) post registered nurse (RN) program, the JCU School of Nursing Sciences

and the World Health Organisation are also involved in supporting post-graduate education for nurses in Fiji in the areas of intensive care and cardiac nursing, and have offered additional support to enable nurses to gain masters qualifications. The nurses who are undertaking these educational programs are destined for nursing leadership in Fiji. They are selected for their potential to fill leadership positions in the Fiji health industry in the future.

One current strategy to enhance leadership knowledge and skills is embedded in the BNSc post RN program being offered in Fiji by the JCU School of Nursing Sciences. This program was adapted from a leadership and management subject currently offered at postgraduate level in Australia, following consultation with Fiji senior nurses about what was particularly needed for Fiji. The nurses in the program are introduced to contemporary leadership and management information within a dedicated subject to assist them in their current and future leadership roles. The leadership and management subject included in the BNSc course provides information about core operational tasks such as strategic planning, human resource management, financial management and quality management.

Perhaps more importantly the program focuses on nurses acquiring the skills and attributes needed to confront the opportunities involved in managing change (Daly, Chang, Hancock and Crookes 2004). Such knowledge may be the very foundation of the 'personal power of the leader' (p. ix). This type of thinking is not inconsistent with traditional notions of leadership in Fiji. Nayacakalou (1975) made a strong claim that traditional Fijian leadership is hierarchical and 'based fundamentally on rules of descent and kinship' (p.114). Nevertheless, the chiefs in Fiji have been, in fact, leaders rather than 'headmen'. This distinction is clarified with the following statement related to the chiefs' leadership style:

*Positions were inextricably interwoven with the structure of their groups so that goals for which the groups organise under the leadership of their chiefs remain common goals... this is the essence of what Fijians mean when they say that 'the chiefs and the people are one' or that 'the people are chiefs' (Nayacakalou 1975, p.115).*

Contemporary notions of leadership and teamwork, then, have long been valued in Fiji culture.

The BNSc post RN program in Fiji involves a series of 'residential' schools, where the senior nurses who are the students are released from their positions for a one or two week period five times in the year they are undertaking the program. Generally, JCU lecturers travel to Fiji and co-facilitate learning with Fiji tutors in various subject areas for five days, followed by a second week of students' self-directed study.

## Relating Western leadership theories to the culture of Fiji

Teaching and learning about (mostly North American) leadership theories for Australian and Fijian nurses comes with unique challenges. Initially, rather than focusing on differences in cultures between developed and developing countries, it has been crucial to recognise the effects of colonialism and post-colonialism in Fiji. Central to the process is the recognition that leadership theory as it has been developed in the United States of America and in other developed countries will not necessarily transfer to the culture of Fiji. Concerns such as those raised by Gott (2001, p.675) in relation to colonialism and post colonialism continue to be addressed during the interactions that occur during the education process: ‘...although the Empire departed over the horizon a long time ago, it still shows signs of life...from Sierra Leone to Kashmir, from Sri Lanka to Fiji...the Empire simply refuses to go away’.

Notwithstanding the negative effect of colonisation on Fiji leadership earlier last century (Sharpham 2000), it is important to note that the country has been subject to extensive Western influences, and that discussions about leadership theory are often understood in similar ways by both Australian and Fijian nurses. This means that, for example, when discussing issues surrounding transformational leadership, our communication is trans-cultural, that is, transcending cultural boundaries (Meleis and Lipson 2004) rather than cross-cultural.

There is necessity for these Australian academic(s) to have someone function as a ‘cultural broker’ (Washington, Erickson and Ditomassi 2004) in order to minimise behaviours that might be misunderstood or might offend the leadership students. This role is often undertaken by the Fiji School of Nursing Tutor who is also employed by JCU. Rather than attempting to ‘adapt’ the theories to a stereotypical Fiji context and applying a reductionist, so-called ‘laundry list’ approach (Meleis and Lipson 2004) to understanding how best to learn about leadership in Fiji, a different approach is needed. This takes the form of a continuing conversation between all parties, to maximise understanding and cultural relevance for all of the teaching and learning sessions.

Thus there is no ‘cookbook’ for adapting Western leadership theories for Fiji, and neither should there be. Rather, a group of nurses (Australian and Fijian) work together to apply their learning in a culturally appropriate way, utilising local examples in group work, and continually discussing the relevance of the work for Fiji.

The best that can be and has been achieved is for the Australian academic(s) to learn as much as possible about Fiji, both before visiting the country through ‘academic knowledge’ (Meleis and Lipson 2004) by reading about the socio-political and economic history of the country and the history of leadership, nursing and nursing leadership. Such knowledge is supported by ‘experiential knowledge’ which involves living in the country for the

time of the residential schools, and spending extended periods of time with the Fijian nurses, discussing each others’ personal lived experiences as nurses and nursing leaders. As Campinha-Bacote (1998 as cited in Meleis and Lipson 2004) so clearly implies, cultural competence is a journey rather than a state to be achieved.

## Learning to lead

The leadership and management subject involves the nurses exploring their own values about what nursing means to them, and how those values equate with their objectives for health services and for the people of Fiji. They explore the concept of transformational leadership (Courtney, Nash and Thornton 2004; Wedderburn-Tate 1999; Bass and Avolio 1994;), comparing this with the less effective transactional style (Kuhnert 1994). Kur and Bunning (2002) make the distinction between transactional and transformational leadership by describing ‘transactional’ behaviour as essentially being about management and ‘transformational’ behaviour being about leadership.

As participants develop further along the path to effective leadership, the intent is that they will experience a stronger sense of inner direction and purpose. The aim is that they will notice they are being guided more by their own internal values, rather than doing things more often because other people think they should, or because doing them won’t ‘rock the boat’.

Participants are also exposed to information about the relationship between emotional intelligence and effective leadership (Goleman, Boyatzis and McKee 2002; Rozell, Pettijohn and Parker 2002; George, 2000; Sosik and Megerian 1999) and the importance of identifying one’s own level of both emotional intelligence and emotional competence. The dimensions of emotional intelligence have been linked to ‘emotional competence’ in a framework developed by Goleman (1995), and refined by Goleman, Boyatzis and McKee (2002) into ‘leadership competencies’. These are about self-awareness, self-management, social awareness (including empathy) and relationship management (including providing inspiration for followers).

The students also explore aspects of their own personality styles and how this might relate to their actions as nursing leaders. As Speedy (2004, p.38) contends ‘leadership in professional situations requires a foundation of knowledge and skills that is influenced by a diverse range of factors...[including] the personalities of leaders [and] their psychological characteristics and make-up’.

Engaging in ‘getting to know oneself’ can be confronting and is often difficult to do. This can be especially challenging in a culture where the traditional Fijian values of showing respect (vakarokoroko) and love (loloma) for others overrides the European habit of focusing on oneself (Katz 1983, p.28). Western ‘individuality’ is traditionally less important than being

‘one who is vikaturaga [showing] respect and love for all persons at all times, regardless of their social status...such a person is truly humble’ (p.28).

Such self-assessment and reflection can be considered however to be a first step toward beginning the process of effective leadership. Indeed, following a session in the 2003 residential school about developing a personal and professional as well as a health industry strategic plan, one student arrived early at the classroom in Tamavua and wrote on the blackboard: ‘We are going to be transformational leaders!’ For the people of Fiji, as elsewhere in the world, effective health care and good health outcomes are reliant on capable health industry leaders.

## CONCLUSION

Cross-cultural education in Fiji is not without its challenges. Consistent with Laverack and Brown’s (2003) advice about cross-cultural research, there is an ongoing need to understand beliefs and values, and styles of interaction and communication, and indeed, ideas about time. Nevertheless, with collaboration between Australian academics and Fiji tutors from the Fiji School of Nursing, the program appears to be remarkably successful. Notwithstanding several amusing interchanges about the difference between ‘Fiji time’ and ‘JCU time’ in terms of arrival in the classroom, the willingness of all parties to deal with each other’s differences has been favourable. What is less certain at this stage is how nursing knowledge about leadership and management will translate into effective change management in the health industry in Fiji, and, most importantly, improved health outcomes for the people of the Fiji Islands.

One might alter Manaini’s story somewhat, and introduce a little piece of hopeful fiction, which is a vision for nursing in Fiji in the future:

*M. was one of the women in the village who became a nurse. This completely changed her status in the family and in the village. Everyone knew that nurses had taken Fiji to a new level of good health, and that was regarded as the highest achievement...*

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