FROM THE EDITOR – Dr. Jackie Jones, RN, PhD

IS NURSING BECOMING A POLITICAL MINEFIELD OF THE UNACHIEVABLE?

'*We have just got too much to do and carry too much responsibility.*' Times have changed and the pace and nature of nursing work has changed but have people changed in line with them? In recent conversations with experienced clinicians and academics I have increasingly become concerned that, in addition to the challenges being faced by nurses in terms of complex and highly political health care contexts, nurses themselves are unclear about the role they are now expected to undertake. Nurses are also frustrated by how such a role can even be possible at all. There are frameworks for practice that help articulate and name a nurse's role but one must now question whether they set the bar too high for such a role to be realistically achieved.

Karen Cook, the CEO of The Australian Nursing and Midwifery Council, announced the release (ANMC 2006) of its revised National Competency Standards for the Registered Nurse (ANMC 2005) and newly developed National Competency Standards for the Midwife (2006). These documents provide 'a nationally consistent framework by which the performance of nurses and midwives can be measured'. Karen advises, 'they are used to ensure that nurses and midwives completing their studies meet the required standards to practice, that nurses and midwives registering each year remain competent, and that nurses and midwives arriving from overseas are able to meet Australian standards. The Standards also have an important role to play in measuring performance when issues of professional misconduct and competence to practice are being investigated'. They are also being used as a means to communicate to consumers the standards the state and territory nursing and midwifery regulatory authorities expect from nurses.

As a case in point Competency Standard 4.3 states a registered nurse 'Contributes to the professional development of others – supports health care students to meet their learning objectives …' (ANMC 2005). This is a very high expectation as students are considered to be a burden despite even the best intentions of registered nurses because of the heavy workload being experienced by nurses at the clinical level. In a recent systematic review (Abbey et al 2006), a project funded by the Australian Government Department of Health and Ageing, it was found that nursing workload inhibits clinical practice and can negatively influence the perceptions of undergraduate students about the nurses' role. Furthermore, the review identified that a heavy workload reduces the nurse's capacity to provide adequate and effective clinical supervision of undergraduate students. This is of concern because the quality of interaction and knowledge, skills, and practice knowledge

transfer is seen to be a linchpin to best practice in clinical placement supervision, whether it is in an acute or aged care environment (Abbey et al 2006, p25).

What choice do nurses have: do they decide how many students are in need of their professional contribution at any given time and do they have a choice when workloads run to extremes and patient care needs are so complex? Do the students have a choice about where they gain clinical experience and which nurses are available to provide clinical supervision? Over and over again clinical nurses lament they just don't have 'time' to give the care that they want to, let alone take on yet more students. Are we asking too much of nurses in an industrial relations climate that threatens to take away basic supports that nurses have come to expect?

In this issue our guest editorial is by Professor Jenny Abbey who makes the potent argument that 'we must ask: is it choice for its own sake that we want; or would we happily settle for less choice and more of other desirable qualities in many areas? We need to distinguish choosing among the options others decide to offer us and making choices about what options should be available.' It is a plea for nurses to get more political, to understand that the very basis of their clinical practice (and practice elsewhere) is highly political. There is no such thing as just going to work for a day's wage; the very act of participating as an employee in a health care system positions the nurse within a political landscape of health choices and choices about health care.

Our featured papers in this issue also explore the many dimensions of patient needs and some of the roles nurses have. We start with St John et al who identify an often hidden group of women who experience grief and loss to 'give voice to the women who have suffered a prenatal loss prior to a full term pregnancy'. The emergent theme from this small qualitative study suggests that further research needs to explore how society and the health care community may compound women's grief and isolation and in-turn perpetuate their feelings of anger. Specifically, the study identifies a need for nurses and midwives to offer sensitive care, acknowledgment of previous loss and supportive counselling strategies for women following prenatal loss and during antenatal care for subsequent pregnancies.

Keatinge used a telephone survey to determine parent's preferred health information sources related to their child's health. Parents frequently selected more than one item on a list of health information sources. The study highlighted that parents prefer to receive information

about the health care needs of their child from another person rather than a printed or audio-visual source.

The next three papers focus on medication issues. Bajorek and colleagues used a qualitative group interview method to explore the barriers to warfarin use from the perspective of nurses working in aged care. Identification of their perceived role/s, experiences with patients, and potential strategies for managing the therapy produced five main themes: perceived patient attitude toward warfarin; barriers to the use of warfarin; expressed lack of confidence in the processes involved; nurses' role in warfarin use; and strategies to improve warfarin use. Nurses were concerned about warfarin use in the elderly, but felt they had a limited capacity to intervene. Bajorek et al argue nurses are potentially underutilised as a resource and support for both patients and prescribers, in the management of warfarin therapy.

Brownie continues the theme with the role that nurses can have in relation to 'alternative medications'. Her study aimed to identify the health conditions and symptoms that predicted dietary and health supplement use in older Australians. Data (n=1200) were obtained using a self-administered postal survey which identified that at the time of survey, 43% (n=548) reported using some form of supplement. Brownie argues that nurses have an important role to play in encouraging older individuals to disclose their use of supplements to all health professionals involved in their continuing care.

McBride-Henry and Foureur present a contemporary literature review that highlights research addressing the issues related to medications that arise in tertiary care facilities. Medication administration errors are reported to occur in one in five medication dosages. Such events have long been scrutinised, with the primary focus being the practice of nurses and their role in medication error. Over the past few years a shift in how medication errors are understood has led to the identification of systems-related issues that contribute to medication errors. Initiatives

such as the 'Quality and Safe Use of Medicines' in New Zealand are said to present an opportunity to address some of the safety related issues with a view to enhancing patient safety.

Ski and O'Connoll continue with a focus on older people to increase knowledge and awareness of early detection and efficient management of delirium as the first step toward its prevention in the acute setting. These authors argue that managing patients with delirium is challenging not only for the management of their basic nursing care needs but also because they are prone to adverse events such as falls and medication problems. The argument suggests it is vital that health care professionals routinely assess patients for signs of delirium as research indicates that early identification and intervention can help to limit any negative effects or adverse events.

Our final paper by Davidson et al, reminds us that contemporary health care systems are constantly challenged to revise traditional methods of health care delivery. Subsequent discussion of potential alternative models of care ensues with scant reference to defining what constitutes a model of care. Utilising a systematic approach to the literature, this paper aims to define what is meant by the term 'model of care' and document the pragmatic systems and processes necessary to develop, plan, implement and evaluate novel models of care delivery.

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GUEST EDITORIAL - Professor Jennifer Abbey, Professor of Aged Care Nursing Queensland University of Technology and the Prince Charles Hospital Health Service District, Queensland, Australia.

HEALTH CHOICES FOR AN AGEING POPULATION

The ageing of the Australian population is well publicised with the 85-years-and-above cohort, the 'old old', being the fastest growing. This profile is not unique. Far from a looming burden or impending catastrophe, it represents a triumph of public health and the health sciences generally. That said, once the crowds of longer-living baby boomers start turning, more often, to the health services for relief from the ailments of age, we will face an unprecedented strain on services.

The fast-rising cost of developing and delivering existing and new services, together with other converging factors, will force on us the kinds of choices we haven't faced previously. The politics of making such choices are further complicated by the sense of urgency that accompanies the need for re-development in the first place. Some fundamental rethinking of existing institutions, beliefs and practices in the healthcare sector is inevitable; and we are likely to have to confront major changes at the individual and public policy levels. In many cases, probably most, older Australians will be in the front line when the hard choices are made.

Let us recall some of the likely hot-spots – residential care, community services, workforce issues and cost cutting measures – before commenting on the nature of healthcare choices in a liberal and increasingly privatised, mass democracy.

Currently Australia has approximately 3000 accredited residential aged care facilities (RACFs). In 2002-03, 184,095 people were in permanent residential care, and 731,186 people received some form of community package (Hogan 2004). The level of provision, combining RACF beds and community care packages, has risen from 100 places per 1000 persons over 70 years of age to 108. Hogan sees this as sufficient to meet overall needs.

However, there is a significant and worsening imbalance between the supply of high care and low care beds. The main single obstacle is the anomalous funding system that makes raising capital to build low care beds easy but makes the same thing almost impossibly difficult for high care beds – the most needed type of bed now and for the foreseeable future. This obstacle must be addressed, and soon, in a way that neither allows profiteering nor puts decent accommodation out of reach of the less well-off. We missed an opportunity in 1997 when the issue was on the table and probably missed another chance a year ago when the government failed to act on many aspects of the Hogan report (Hogan 2004). There is no room now for another failure of political nerve.

The residential sector is under funded overall and, as usual, penny pinching defers, or even creates, costs rather than avoiding them. Are there plans afoot to push more of the costs of accommodation (at least) onto the elderly resident? Impending changes to the draw-down rates of the most popular types of retirement income streams suggest to me the Australian Government will expect self-funded retirees to divert more of their future retirement income into paying for their own residential care. If this is so, charging regimes will require careful monitoring and the public needs to know what is in store. Transparency, not furtive planning, allows individuals time to re-jig their plans and adjust their hopes and dreams.

Much of the recent provision in RACF beds is in the 'extra service' segment of the market. Those who can pay more get more. There should be no intrinsic objection to this. Such choices have a legitimate role so long as broad considerations of social equity are upheld. Catering to the well-to-do must not distract us from the legitimate needs for quality care and accommodation of those who cannot afford to take the 'extra service' path to extra comfort. An effective regulatory body with the necessary teeth will help ensure that increased 'choice' doesn't become a problem in itself.

The transformation of Australia's community-delivered services over the past two decades has shown how expanding choice can benefit clients, service providers and health and welfare budgets. The gain in improved coordination of health and social services has been enormous in its implications, although there is still much further to go. But just how far can we go with home delivery? The dementia epidemic in the coming forty years – we anticipate more than 500,000 cases by 2040 (Access Economics 2003) – will challenge us in this sphere. We urgently need to learn how to offer choice in community-based services for this new army of elderly Australians if we are not to replicate our scandalous failures in the mental health area in the wake of de-institutionalisation. Research into the closer and better-informed coordination of existing services is proceeding, but this is a race we could win or lose.

If the word crisis is to be used it must be in relation to workforce issues. We have failed dismally in workforce planning and many Australians have already paid the price. Queensland's doctor supply crisis is an extreme but not an isolated example. An ageing Australian nursing workforce is already hard-pressed and globally shortages are the norm. Our reliance on 'borrowing' – or should that be 'stealing' – doctors and nurses from poorer countries, with already insufficient human resources or health

professionals, is not only unethical from a global perspective but short-sighted. That other appalling 'make-do' measure – the hospitals' undue reliance on agency staff – is bad for continuity of care and disastrous for budgets. 'Nurses working in aged care earn nationally about $200 per week less than their colleagues in the public sector but are still expected to have the same level of qualifications and experience to undertake their work.' (ANF 2005) This wage discrepancy is a cause of shame. Pressure must be brought to bear immediately if we are to match supply and demand while raising standards of care.

Cost reduction measures are creeping in, largely unnoticed, in the form of raised benefit thresholds, larger co-payment requirements, longer waiting lists, reduced servicing, temporary bed closures and the like. Will it come to the explicit adoption of rationing? There is growing interest in the subject in the professional literature. If it comes, will it be by price, by the estimated impact on the quality of active years left to the patient, or perhaps as a reward for good self-care choices? For example, we already see some areas in the UK putting smokers down the waiting list for certain kinds of treatments. Who decides whether we need such choices? Who would make them?

Choice doesn't come cheap. It can be costly to create and maintain. Can we afford to sustain the astonishing choice of health insurers we now have – about 40 funds – when 10% or more of client contributions go to meet management overheads and contributions are rising at near double digit rates each year? Is that a cost effective way of supporting the health system? And is saving 'choice' so important we should allow the flood of fast food advertising in children's TV programs? Anyone remember the cost of the choices we *didn't* make in the tobacco debates of the 1960s?

We must ask: is it choice for its own sake that we want; or would we happily settle for less choice and more of other desirable qualities in many areas? We need to distinguish choosing among the options others decide to offer us and making choices about what options should be available. We need to know how to become better at making health choices, about our own affairs and about public policy. Health expertise is not available to everybody and most of us have trouble in understanding all the choices the experts, who are usually the 'sellers', can offer. In an area where the dollar stakes are so high and the lobby groups so powerful, these are not minor concerns.

In financial matters the coming craze is courses in 'financial literacy' for the public. Can we invent ways to make us better, more influential and ultimately more satisfied shoppers in an expanding health marketplace?

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SHROUDS OF SILENCE: THREE WOMEN'S STORIES OF PRENATAL LOSS

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ABSTRACT

Objective:

To give voice to the experiences of women who have suffered a prenatal loss prior to a full term pregnancy.

Design:

A descriptive, exploratory qualitative study using mini-biographies was used. In-depth interviews were conducted with women to record their experiences and stories. Interviews were transcribed and the patterns that emerged from the data were identified and themes generated.

Subjects:

The mini-biographical stories of three women were gathered. Interviews occurred in the women's homes. The women were recruited through an advertisement in the *Stillbirth and Neonatal Death Support (SANDS)* newsletter.

Results:

The stories revealed the tragedy, pain and silence endured by these women, as they live with loss and grief. Common themes emerged from their stories highlighting grief, isolation, anger and self-blame in the face of their loss and subsequent full term pregnancy.

Conclusions and Implications for Practice:

The emergent theme suggests that further research needs to explore how society and the health care community may compound women's grief and isolation and in-turn perpetuate their feelings of anger. In telling their stories, these women give voice to their experiences and offer a number of insights into how current health care practices may be modified to better support the needs of women who have suffered a prenatal loss and also points to the need for further research. Specifically, the study identifies a need for nurses and midwives to offer sensitive care, acknowledgment of previous loss and supportive counseling strategies for women following prenatal loss and during antenatal care for subsequent pregnancies.

INTRODUCTION

This paper gives voice to three women who experienced prenatal loss prior to a successful pregnancy through the recording and analysing of their mini-biographies. Although pregnancy is most often associated with joy and happiness, for a number of women these feelings are short-lived as their baby dies either through miscarriage, ectopic pregnancy or neonatal fatality. While society relishes birth, there is a silent disregard for the grief and despair that pregnancy loss evokes.

Prior to the late 18th and early 19th centuries birth and death were ostensibly the domain of women (Nolan 1998; Bourne 1984). Traditionally women attended and supported one another, their families, and friends as they passed through these phases. This is particularly true in pregnancy; a time when the spirit of life and death come together. As a result of technology, modernisation and the rationalisation of society women no longer have high levels of intimate social connectedness to other women in their local area. This led to women's traditional roles in birth and death becoming encompassed within the domain of health care professionals (Nolan 1998; Bourne 1984).

Although previous research has explored the association between prenatal loss and grief and the role of health care professionals, there is a dearth of research focusing on the needs of women who have experienced prenatal loss, specifically in terms of antenatal care for subsequent pregnancies. The term prenatal loss describes varying types and reasons for pregnancy loss and is used in this paper as the overarching descriptor.

The focus of this study is neither a quantification of prenatal loss to any gestational or underlying maternal condition nor the influence of loss on a subsequent pregnancy. Rather it unfolds three women's responses, experiences and perceptions of prenatal loss, identifies implications for practice, and points to the need for further research.

LITERATURE REVIEW

Prenatal loss is a tragic event which causes physical and emotional trauma (Jacobs and Harvey 2000). Approximately one in five pregnancies end prematurely, with figures in Australia being similar to those of the United Kingdom and the United States of America (Boyce et al 2002; Conway and Russell 2000; Lee and Slade 1998; Beutal et al 1995). Despite these figures, only since the late 1960s and the early 1970s has pregnancy loss been recognised as a grief-producing phenomenon, and various studies on prenatal loss did not really appear in the literature until the mid 1980s (Beutal et al 1995; Hutti et al 1998).

Since this time research has been undertaken into the sequelae and other issues associated with prenatal loss (Cote-Arsenault and Mahlangu 1999; Hughes et al 1999; Armstrong and Hutti 1998). Harvey et al (2001) found that silence, isolation and loneliness are common experiences women encounter after a miscarriage. Lindberg (1992) found that despair was significant in the grief response and could be attributed to the lack of mourning behaviours in society and limited awareness that grief after pregnancy loss is a reality. Therefore a subsequent pregnancy can bring about stress, anxiety and reduced prenatal attachment as a result of emotional issues left unresolved from the prior loss. It may be common for women to compare the current pregnancy with the previous one and perceive their pregnancy as more precarious resulting in guarded emotions about the pregnancy and the baby (Rillstone and Hutchinson 2001; Cote-Arsenault and Mahlangu 1999; Hughes et al 1999; Armstrong and Hutti 1998).

Conway and Russell (2000) argue that health care professionals can no longer perceive pregnancy loss as a matter of insignificance. Silence is a common response to a woman's loss whilst platitudes trivialise loss and do not legitimise the pain and anguish, thus increasing women's feelings of isolation.

Despite the fact that most primary health care professionals view psychological care as important in the aftermath of prenatal loss, dissatisfaction with the care provided is prevalent (Harvey et al 2001; Lee & Slade 1998). The short time spent in hospital following a pregnancy loss may be one of the most mitigating factors in the lack of emotional support provided by health care personnel (Sweet 2000; Swanson 1999).

Unlike previous research, this study explores how women experience prenatal loss, the meanings it has for them and how they dealt with the grief and despair. While the literature recognises that prenatal loss is a grief-producing phenomenon which evokes physical and emotional pain, there is a lack of research giving voice to women who have lived such tragic events. Listening to women's stories regarding their experiences of prenatal loss recognises their needs in terms of what they deem useful, helpful and supportive assistance to positively inform health care practice.

THE STUDY

A descriptive, exploratory qualitative framework was used to investigate an under-researched issue for women. The three women chosen for this study had a prenatal loss prior to a successful pregnancy. Participants were over the age of 18 years and could comprehend and speak English.

Although 10 women responded by telephone to the advertisement in the *Stillbirth and Neonatal Death Support (SANDS)* newsletter, most were not appropriate for this study as they had not gone on to have a successful pregnancy. Given the scope, and time limitations of this study, geographical proximity formed the basis for choosing participants. Three women living within a 10 kilometre radius of each other were chosen. Ethics approval from the Griffith University Human Ethics Committee was granted for the study.

Gathering the stories

The use of unstructured interviews enabled the women to reflect on their experiences, recall events that featured so predominately in their lives and provide a rich and comprehensive understanding of their perspectives (Streubert and Carpenter 2003). The use of unstructured interviews defined the specific context of each participant and focused not only on the women, but also on their individual situation, as context can define and shape behaviour.

Each woman, after giving written consent, was interviewed in her own home for approximately three hours enabling her story to be told in a setting that facilitated a more comprehensive depiction of her personal viewpoint. To maintain confidentiality the women were given pseudonyms of Tanya, Connie and Sally.

Tanya had lost three children to stillbirth and neonatal fatality prior to the successful birth of her only living child. She lives in the metropolitan area and was cared for under the private health system. Sally experienced a

neonatal death and a miscarriage prior to the birth of her two living children. She also lives in the metropolitan area and had her babies under the private health system. Connie had six miscarriages at various stages of pregnancy and neonatal twin deaths. She has successfully given birth to two living children and at the time of her pregnancies was living in a remote rural area and was cared for by the public health system. As the following analysis shows, while each woman's background is unique, similarities within their stories are apparent.

DATA ANALYSIS

The raw data were analysed from the transcripts of the interviews using qualitative content analysis (Lupton 1999; Streubert and Carpenter 2003) to identify patterns and themes emerging from the women's stories. Initially the central focus of this study was on the women's experience of support during a successful pregnancy after suffering a prenatal loss. However during the interviews it became very apparent that the grief following the women's prenatal losses was still very much a mitigating factor and the concept of support could not be investigated without an exploration into the support received after their loss. Content analysis of the women's stories identified two sub-categories 'being on the outside looking in' and 'being changed or transformed by loss'. The emergent theme of 'dealing with the experience of grief, loss, anger, self-blame in a world of silence' conceptualised the essence of these two categories.

RESULTS

Dealing with the experience of grief, loss, anger, self-blame in a world of silence

The women's losses placed them apart from what society deems a 'normal' loss. Brier (1999) believes that often the absence of a person to bury and/or the absence of memories and time together contributes to the feelings of grief. Yet, these women have memories and their loss and sadness is a tragedy.

I felt like my heart had been ripped right out of my chest. I don't know how I got over that…you know you hear 'she died of a broken heart' – I'm convinced that's true…that pretty much until the day I die I will be in a state of grief. (Tanya)

At times I felt that I just couldn't face another day – all I wanted was for the pain to go away – but it never did and it still hasn't. (Connie)

The women hid this tragedy, fearing rejection from others. This element is reflected in the work of Morris (1993) who believes that society as a culture rejects the notion of tragedy. For the women, the silence began when they were no longer defined by being pregnant, nor by being a mother and felt unable to publicly display their grief.

In a few weeks you are supposed to pick yourself up and just keep going as though nothing has happened…your feelings and emotions – they just have to stay hidden all the time. (Connie)

This perceived lack of social understanding left these mothers alone and uncomforted. Added to this, the silence was aggravated by the failure of friends and family to acknowledge the loss and grief as real. They experienced people avoiding them, or treating them as though they had never been a mother.

It is too much for most people – if you haven't been in that situation it's too much – they back away. (Sally)

Despite the women suffering their losses in different time frames the amount of anger expressed by each reflected their ongoing grief. The anger experienced was three dimensional and focused on the lack of support particularly after the initial mourning period, the lack of understanding by the general community for their loss, and anger at their loss.

Associated with the anger of their loss was self-blame and guilt. Each woman voiced concerns about her behaviour during the pregnancy, reflecting on things that she could have changed even though they each believed they had not done anything that would have precipitated their prenatal loss. They believed somehow it was their fault, that they were to blame in some way.

There is heaps of self-blame – I should have done this and I should have done that…how could I have headed this off. (Sally)

Daiter (2002) notes that women often blame themselves: often harshly and unjustly compounding guilt and adding to an already emotionally volatile situation. These women believed they had failed at something that *'millions of women in the world do'* successfully.

Being on the outside looking in

It was apparent the women were seeking a sense of belonging during their pregnancy experiences. They sought this belonging through the culture of pregnancy provided by health care professionals, by attending antenatal classes and by society in general. After their loss however, these women felt they were no longer able to find that sense of belonging in mainstream health care and society. One woman's statement that *'you are some kind of freak'* clearly illustrates how the women felt 'abnormal'.

Moules (1998) believes society's tolerance of visible grief is limited and resulted in these women feeling alone and isolated. They felt there was *'no place'* where they belonged. This feeling of isolation and of having no clear place in society to be a mother without a child has also been identified by other studies (Harvey et al 2001).

Previous research, although limited, suggests support from health care professionals after a prenatal loss is minimal and not effective. Follow-up visits are rarely

organised and there is a failure by health care professionals to validate and recognise women's experiences resulting in increased fear and vulnerability (Swanson 1999; Thapar and Thapar 1992). The women believed they had been left to deal with all the emotional issues brought about by their loss without the support of health care professionals. The loss of a child placed the women outside the auspices of all mainstream health services. Because the women were no longer pregnant, they did not require antenatal care. They were mothers, but without a child so they did not require Maternal and Child Health services.

The lack of care and support available, or offered, to the women provided the impetus for these women to seek help outside the realm of health-care professionals. The women sought support through self-help groups and joined at various stages after their loss. The desire to seek support and help from others who have been through similar circumstances was seen by the women as invaluable.

Laakso and Paunonen-Ilmonen (2001) believe discussing difficult issues with those who have had similar experiences is easier and offers positive encouragement. Seeking help from women who have had similar experiences highlights the women's need to belong. For these mothers learning how other mothers coped with grief gave hope and positive encouragement. The common experiences of belonging to a self-help group produced solace, comfort, understanding and hope. However, this sense of belonging faded when the women became pregnant again. They believed they no longer fitted into the boundaries of the group; their guilt resurfaced as they felt it was unfair to face women who so far had not been able to successfully become pregnant again, a view that is reflected by Armstrong and Hutti (1998). The anguish, despair and guilt these women continued to feel over the loss of their babies coupled with the guilt about being pregnant again, left them isolated and the silence returned.

Being changed or transformed by loss

Each woman struggled with her sense of identity. Although each felt she was a mother, she was a mother without a child, and did not have tangible evidence of her motherhood. The women had no visible representation for the love, hope and dreams they felt for their child. Stroebe, Stroebe and Hansson (1993) believe that mothers maintain an attachment to an internal representation of their child and may do so for many years after the child's death. As such, the grief can be a life changing experience that is related to the type of loss and has inescapable elements of suffering and pain (Moules 1998; Anderson, Besson and Porter 1994).

The joy of being pregnant again for these women was overshadowed and marred by their previous experiences. Each woman stated that she was happy to be pregnant again, but that the happiness did not last long.

Oh gee petrified – but over the moon, absolutely petrified and not really hopeful…it's happened this month and I'm pregnant, but then…the over the moon feeling disappears about half an hour after you read the little urine stick…you hold back on any other feelings. (Sally)

The reoccurrence of similar circumstances, such as pregnancy, can involve comparison of past experiences to current ones and as such feelings of apprehension can occur. For these women it was the threat of another miscarriage. Cote-Arsenault and Mahlangu (1999) found that women are far less confident during a subsequent pregnancy for fear of a recurrence of past events.

For these women, their previous pregnancy experience taught them that not all pregnancies result in a live baby. They were aware what had gone wrong in their previous pregnancies could occur again. Each woman reflected on how she felt she had lost the bliss and enjoyment that can be associated with pregnancy. The women held back from making an emotional attachment to their unborn child in what could be viewed as a protective self-defense measure.

Undertaking steps that would increase the chances of the safe arrival of their child were exhibited through other practices by the women. Reading and researching into pregnancy loss and stillbirth featured strongly as a measure that would enhance the safe arrival of their child. The concern for these women was how to get through this pregnancy, even though the pregnancy was dominated with fear of another loss, each woman wanted to maximise her chance of having a baby.

The women revealed they did not attend antenatal or prebirthing classes during subsequent pregnancies. Their non-attendance hinged on a number of factors. Firstly, the women did not wish to minimise the joy of pregnancy that other women may feel if their maternal history was revealed during the natural progression of the classes. Also the women were envious of the joy of others. Indeed, Brier (1999) found that most pregnant women are naive and not prepared for the possibility of adverse pregnancy outcomes.

Finally, fear, initiated by the previous prenatal losses, also prevented these women from attending antenatal classes. All the women raised fear as an issue: they viewed the knowledge that they had gained from their previous antenatal care as inadequate for their needs in their subsequent pregnancy. Fear also included upsetting the other women in the class and a fear of being shunned by other members of the group.

In a way I feel that I missed out on some of the pregnancy experience not being able to attend, like normal people, but a very large part of me was glad that I did not have to go and face all those happy mothers who did not have the foggiest idea what I was going through…but you can't ruin their pregnancy just because yours has gone wrong. (Connie)

Women with special needs often fail to attend antenatal classes which they associate with only positive outcomes (Rossiter and Fowler 2000; Lumley and Brown 1993). The women in this study noted their previous experience of antenatal or pre-birthing classes did not include any reference to pregnancy loss; so again these women felt that they were outside the boundaries of normalcy.

CONCLUSION AND RECOMMENDATIONS

Each woman was asked about what could have helped them in dealing with their loss and subsequent pregnancy. All the women unhesitatingly replied they would have liked someone to talk to. They felt isolated and lacked support. These women recognised that because of their experiences they would never be able to recapture the joy associated with pregnancy. Having someone to talk to who understood their situation would have been beneficial in reducing the anxiety during pregnancy which was brought about by their previous experiences.

The women also identified the need for improvements in antenatal care. These women believed provision of classes or groups that address their needs is a major issue. The women openly expressed a desire for knowledge, and to a degree attained some knowledge through literature, but felt the current agenda for antenatal classes, only addressed positive outcomes and had little to offer them. These women see antenatal care specifically designed for women who have suffered a prenatal loss as an avenue that could be undertaken by the health care profession in alleviating some of the emotional burden that accompanies women in a subsequent pregnancy after a loss. In the future, this antenatal care may allow other women who suffer the tragedy of prenatal loss to find joy in pregnancy instead of fear.

Grief as a sequel to prenatal loss has been well documented through the recent literature and the impact of prenatal loss on a subsequent pregnancy has also been explored. It is, however, important to continue research in this area. Given the perspectives raised by these three women, although the study is limited by its size and scope, it does point toward the need for further research to examine the effectiveness of strategies and interventions in supporting and assisting women who have experienced a prenatal loss.

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PARENTS' PREFERRED CHILD HEALTH INFORMATION SOURCES: IMPLICATIONS FOR NURSING PRACTICE

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ABSTRACT

Aim:

To ascertain parents' preferences in sources of health information concerning their children's general health care needs, and caring for their children when they are sick.

Design:

Exploratory/descriptive design. A telephone survey secured data for the study and qualitative content analysis and descriptive statistics were used for analysis.

Setting & Participants:

Part 2 of a larger study in which Part 1 evaluated parents' satisfaction with a paediatric telephone triage service. One hundred of the 101 parents who were recruited for Part 1 of the study participated in Part 2, an examination of parents' preferences in information sources relating to their child's health.

Main Outcome Measures:

Parents' preferences in child health information sources varied according to the perceived severity of their child's illness.

Results:

Parents frequently selected more than one item on a list of health information sources provided. In a non-urgent situation when children were sick a total of 170 selections were made by parents, with 'telephone advice line' the source most frequently selected (58, 34%), followed by general practitioner (27, 15.8%). In an emergency situation the most frequently selected information source was again 'telephone advice line' (74, n=129, 57.4%), followed by 'other' (31, n=129, 24.3%) often identified as relating to dialing '000' (Australia's emergency services number). Finally, when parents required information about the general health care needs of their child, 'other' (most frequently identified as books) was selected on 40 (n=185, 21.6%) occasions, followed by child health clinic (35, n= 185, 18.9%).

Conclusion:

Parents prefer to receive information about the health care needs of their child from another person rather than a printed or audio-visual source.

INTRODUCTION

A small pilot study aimed at identifying parents' preferences in sources of child health information (CHI) was conducted within a larger study designed to evaluate the Kids Kare Line (KKL). The KKL, a telephone triage service for parents of sick or well children, was commenced in 1993. This service, situated in regional New South Wales, is operated by registered nurses experienced in paediatric/child health nursing. These nurses are oriented to this specialty of nursing (Wilkinson et al 2000), have access to continually updated policies (Gobis 1997) and enter information arising from parents' telephone calls into a database to ensure a record of each call (Coleman 1997).

Interest in parents' preferences in sources of information related to their child's health was stimulated by the range of calls received by nurses operating the KKL and the limited amount of literature, particularly research literature, relating to this topic. In addition, much of the existing literature relates to models through which to provide parents with health care information (HCI) for children (Lee et al 2003; Glasper et al 1995) and its impact on their decision making in relation to their child's health care (De Serres, Duval and Boulianne 2002).

Despite limited research on parents' views on sources of HCI for their child, the advent of the internet appears to have raised some curiosity about this issue. For example, Ikemba et al (2002) surveyed parents of children with congenital heart disease to identify levels of access and use of the internet to obtain information about their child's illness. They found that 58% of the 275

respondents had access to the internet and a further 58% of this number had used the internet and found it helpful to obtain HCI about their child.

Nevertheless, Ikemba et al (2002) warn of the hazards in term of standards, accuracy and currency of information accessed on the internet for parents relying on this means of securing child health information (CHI). Haddow and Watts (2003), who researched the quality of internet information in relation to caring for a febrile child also found this to be generally poor when measured against information identified on a Best Practice Information Sheet related to the management of fever in children (The Joanna Briggs Institute 2001). Despite this, the number of websites available to parents seeking information about child health appears to be growing in number and user friendliness (Long et al 2001).

When the survey for the KKL (Part 1 of the study) was being developed it was decided to add three further questions designed to identify parents' preferences in sources of CHI in a non urgent situation when their child was sick; in an emergency situation when their child was sick; and, thirdly, in order to gain information about the general health needs of their child. Analysis of data related to these three questions comprised Part 2 of the study.

METHOD

Aim:

To ascertain parents' preferences in sources of health information concerning their children's general health care needs, and caring for their children when they are sick.

Ethics Clearance:

Ethics clearance for the study was obtained from the University of Newcastle and the Hunter Area Health Service Human Research Ethics Committees. Prior to commencement of the study, a meeting with nurses working on the KKL was convened to discuss both its parts and seek these nurses' assistance with it. These nurses were interested in the study and in its findings.

Recruitment

For a three month period, commencing in February 2002, parents who telephoned the KKL were asked, at the conversation's conclusion – by the KKL nurse responding to their call – if they would like to receive information about the study. Names and addresses of those parents who wished to receive this information were documented on a form provided. The Research Assistant (RA) collected this form, and posted an information package comprising an information letter, consent form and

stamped addressed envelope for its return to each parent. Subsequently, the RA telephoned consenting parents to arrange a time to administer the study's telephone survey.

The Survey

The design of questions posed on Part 1 and Part 2 of the study's survey was informed by the literature. The three questions comprising Part 2 of the survey aimed to identify information about three situations in which parents might seek CHI: in a general situation of child illness; in an emergency situation of child illness; and in a situation where parents required general CHI. The survey was administered by the study's RA via a telephone call, at a pre-arranged date and time, to each consenting parent, and data were entered into a database immediately subsequent to the conclusion of the call.

A total of 1487 calls were received by the KKL in the 12 weeks during which parents were asked if they wished to receive information about the study. Of this number, 350 (24%) parents expressed interest in receiving this information. Of these 350, 112 (32%) parents consented to participate in the study. Ultimately, 101 of these parents responded to Part 1 of the study and 100 to Part 2.

Following the completion of 10 surveys, the chief investigator and the RA met to review survey responses with the result that one question in Part 1 of the study was adjusted in terms of the language used in its expression. As in Poole et al's (1993) study, inter-rater reliability of the survey was assessed by a second blinded caller administering the survey to 10% (n=10) of parents a second time.

DATA ANALYSIS

Data analysis for Part 2 of the study comprised categorical analysis for the identification of frequencies, as well as qualitative content analysis to structure data from the survey's open ended questions (Brink and Wood 1994). Qualitative content analysis comprised reading each open ended question to develop categories which described the participants' responses.

RESULTS

The first question relating to parents' preferences in sources of information relating to their child's health asked:

What is the best way for you to get information about caring for your sick child in a non-urgent situation?

The 100 parents who responded to this question often selected more than one information source. In total 170 selections were made (see table 1).

The three most frequently identified information categories were telephone advice line 58; general

practitioner (GP) 27 and other 24. 'Other' related to: books, (identified by 9 participants); internet (7), chemist (or pharmacist) (7); paediatrician, (1) and library (1).

'Telephone advice line' was not further specified in the survey. However, the study's RA noted that parents most frequently identified this as the KKL. One participant endorsed this saying: *'As we live a long way from town I read a lot and feel I know his problems and treatments well. I find that the KKL is a very good sounding board and I learn something more every time I phone,'* and a second that: *'Kids seem to get sick outside of normal hours and the KKL is available. It is great to know that there are professional people who are able to answer my questions.'*

One mother who identified 'GP' as well as the 'telephone advice line' commented *'During working hours I would contact our GP. Out of hours I would phone the KKL. I would like to see the KKL hours extended to cover all out of hours when GPs are not usually contactable, especially in the middle of the night.'*

Seven participants identified 'nurse' as a source of CHI for their sick child. The RA commented that this sometimes meant the child and family health nurse and sometimes a friend or relative who was a nurse. One parent commented *'A lot of my friends are nurses and I have always got sound advice from them. I think nurses are wonderful!'* The four least selected sources of information in response to this question were: 'other' health professional (3); magazines (1); video (1) and television (0).

Qualitative content analysis of the parents' rationale for their selection identified: availability (especially when other services are closed); accessibility; reliability; knowledge; reassurance; experience; timeliness; convenience and dependability.

The second question in Part 2 asked:

What is the best way for you to get information about caring for your sick child in an emergency situation?

Some of the 100 respondents again selected more than one information source. In total 129 selections were made (see table 2).

The most frequently selected categories were: telephone advice line (74); 'other' (31) and GP (16). On this occasion 58 of the 74 parents who selected telephone advice line, identified this as being the KKL. For example one parent said: *'I think the KKL is the best way because it is a phone call [to] a local hospital that specialises in children.'* Another commented: *'Depending on the time of day, I would phone the KKL because they are easy to get on to and I have always had all my questions answered when I call. Saves a trip to the A and E (Accident and Emergency) if possible.'* A further caller who identified the KKL as her preferred information source recognised a need not to overload A and E unnecessarily. She said *'I would phone the KKL first so as not to waste the time of doctors and nurses in Accident and Emergency unnecessarily. I trust their advice.'*

'Other' in this instance almost always meant telephoning 000 and/or taking the child to the hospital/accident and emergency department because he/she would need to see a doctor. One participant suggested that 'other' meant taking the child to the GP. Three participants said they would 'call an ambulance' and another said, *'We live very close to the (ambulance) station and I think I would just go straight there in an emergency.'*

Some parents who indicated a preference in an emergency for visiting a GP noted this depended on the GP's hours of business. Their comments included: *'If the doctor is open I would ring him. He knows me and most*

Table 1: Sources from which parents seek information in a non-urgent situation when their child is sick.	
Information Source	**Parents' Preferences**
Telephone Advice Line	58
General practitioner	27
Other	24
Relatives	16
Child health clinic	14
Friends	11
Leaflet	8
Nurse	7
Other health professional	3
Magazines	1
Video	1
Television	0
Total	**170**

Table 2: Sources from which parents seek information in an emergency situation when their child is sick.	
Information Source	**Parents' Preferences**
Telephone advice line	74
Other	31
General practitioner	16
Relative	3
Nurse	2
Child health clinic	1
Other health professional	1
Friend	1
Leaflet	0
Magazine	0
Video	0
Television	0
Total	**129**

of the problems I have are related to my son's asthma. If I can't get in touch with the GP I phone the KKL because they have always been able to give me advice on what to do.' One mother stated that her GP referred her to the KKL saying: *'As we live in…, there is no paediatric service at the hospital. We phone our GP at home if necessary to get advice. He will often advise us to call the KKL.'*

The four categories of information sources that parents least frequently selected were: leaflet (0): magazine (0); video (0) and television (0). Themes in parents' rationale for their selection were: immediacy; emergency; after hours; availability; reliability; sensitivity; accessibility; trust and knowledge/advice.

Finally, parents participating in the study were asked:

What is the best way for you to get information about the general health needs of your child?

Once again the 100 parents who responded to this question frequently selected more than one category of information source. There was a noticeable change in the type of category which scored highest in this question (see table 3) in that, instead of being those most easily accessible, especially in an after-hours situation, services and health professionals who operated during office hours featured most prominently. Therefore, in response to this question the three most frequently selected categories were: 'other' (40); child health clinic (35) and general practitioner (30). 'Other' in this instance comprised: books (23); internet (12); chemist/pharmacist (5); newsletter (2) and poster (1).

Twenty seven of the comments made in relation to this question specifically identified the 'clinic sister/early childhood nurse' and they generally related to:

Table 3: Sources from which parents seek information about the general health needs of their child.

Information Source	Parents' Preferences
Other	40
Child health clinic	35
General practitioner	30
Friend	17
Relative	16
Telephone advice line	15
Leaflet	12
Magazine	10
Nurse	6
Other health professional	2
Television	2
Video	0
Total	**185**

- the opportunity this (attendance at early childhood clinics) gives to obtain regular information;
- the mother feeling comfortable about talking with the early childhood (clinic) nurse; and
- the early childhood (clinic) nurse's information being reliable.

The following comment typifies those made about the 'clinic' nurses: *'I feel very comfortable with the advice I get from my clinic sister and she is very informative.'*

Parent's also frequently mentioned GPs (though less frequently than early childhood/clinic nurses) and these comments referred to the GP's reliability, knowledge of the family's medical records and that parents felt comfortable talking to them.

The four categories least frequently identified in response to this question were: nurses (6) (apparently not including child and family health nurses); other health professional (2); television (2) and video (0). Themes in parents' rationale for their selection were: feeling comfortable; accessibility; trust and knowledge/experience.

DISCUSSION

This study sought to identify parents' preferences in sources of CHI in three situations: in a non-urgent situation; in an emergency situation and in a situation of their child's general health care needs. There appears to be very little, if any, research into this aspect of health information, with the majority of research focusing on the information needs of parents whose children have specific health care needs (De Serres, Duval and Boulianne, 2002; Ikemba et al 2002), or the general context of CHI service development (Glasper et al 1995).

The study's findings identify that in an emergency or non-urgent situation, relating to a sick child, parents prefer information sources that provide person to person contact found in services such as telephone triage and/or emergency services. In an emergency situation the attraction of this type of information source is its immediacy, accessibility and availability, especially after hours, and the dependability of the knowledge provided.

Nevertheless, it is unexpected that the KKL proved so popular in an emergency situation (58 of the 74 parents who selected telephone advice line identified this as the KKL) as a true emergency often requires treatment from a paramedic (obtained by telephoning 000) and/or immediate transfer to hospital. This reasoning appears justified from the finding that 31 parents who identified 'other' in this emergency situation identified this as telephoning 000 or taking their child to an emergency department because he/she would need to see a doctor.

However, parents may perceive that the nurses who operate the KKL, whom they identified as trustworthy and knowledgeable, are able to provide immediate

information relevant to the sick child's needs pending the arrival of emergency services.

In a general situation, in which parents seek information about their sick child, parents identified that their preferences were influenced by availability (particularly after hours), accessibility, convenience, dependability and reassurance. Surprisingly, however, given its accessibility, few parents identified a preference for the internet in this situation. This may be because the internet may not be widely available to parents and/or that parents question the reliability of internet information about child health (Haddow and Watts 2003). Parents' preferences in information sources in this situation also revealed that magazines (1), videos (1) and television (0) were the least preferred sources of CHI. Yet each of these is used to provide CHI in the form of documentaries and advertisements (television), articles/parents' stories about health issues related to their child (magazines) and promotional material (videos).

The picture changes when parents seek general health care information relating to their child. Here the majority of parents identified that they use 'other' (40) sources of information including books (23), the internet (12), chemist (5), newsletters (2) and posters (1). The child health clinic was identified as the second most important source of information in this situation, followed by GPs. From this, it is apparent the need for 'after hours' services diminishes in this situation. In addition, parents' comments revealed that they perceive the 'clinic sister/early childhood nurse', who cares for the parent and child, as a reliable and regular source of information. However, while magazines (10) are comparatively attractive in this context, television (2) and videos (0) are still identified as the least attractive source.

Themes emerging from parents' rationale for their selection of the above information sources included 'feeling comfortable', accessibility (of the resource), and trust in, and knowledge and expertise of the staff/service. Feeling comfortable was mentioned mainly in connection with interaction with the child and family health nurse (and once with a chemist and twice with GPs). It appears the regularity of their visits to the child and family nurses (the clinic sister/early childhood nurse) enabled parents to build a relationship with this person, which, in turn, enabled them to ask questions and seek the information they required.

There are several important issues arising from this study which affect nursing practice development. Firstly because the KKL and services similar to it are operated by registered nurses, and parents rely and respect the knowledge that the nurses share with them, it is important these nurses ensure their knowledge remains current. It is also important that it is provided to often anxious parents in a user friendly way. This also requires these nurses to have excellent listening and assessment skills.

Further, because of the legal implications of telephone triage (Coleman 1997) it is imperative that a clear and succinct record is kept of each telephone call. A further important factor for nurses operating telephone triage services is that they have access to, and contribute to, the identification and currency of policies so as to ensure best practice in the advice they provide and in the consistency with which this advice is provided. Nurses operating telephone triage services also need to be familiar with (and have access to information about) their local network of health and social care services so that they can refer parents to these services when appropriate.

While the discussion relating to clinical practice development has so far concerned nurses operating telephone triage services, it is none the less relevant to nurses working with parents and their children as well as in adult services in all areas of the health care system. Findings from the study are particularly relevant for child and family health nurses, who, like their counterparts in telephone triage services, were identified by parents seeking general CHI as of key importance. This finding relates to the opportunity that a visit with the child and family health nurse brings to build relationships between parents and nurse. However, this relies on parents being able to visit the same nurse if they are to be able to build a relationship they value, and this, in turn, has implications for staff scheduling and workload assessments.

Finally, the study's finding that when a child is sick, parents prefer sources of CHI that provide person to person contact with them, impacts on the feasibility of maintaining or extending this level of contact within the bounds of human and economic resource constraints. However, when addressing this issue, it is worth considering that resources devoted to designing and producing videos and television advertisements/programs relating to CHI may be better directed towards enabling human contact for parents seeking this information.

LIMITATIONS

A limitation of the study was the number of parents consenting to participate given that 1487 calls were received in the period during which parents were asked if they were willing to receive the study's information. In addition, the study comprised only a snapshot of parents' preferences in sources of CHI. The fact that parents were recruited from those who had telephoned the KKL may also have biased their responses toward favouring it as a source of CHI. A further limitation was the lack of specificity (for example in 'telephone advice line') in some of the categories identified in the questions relating to sources of CHI.

CONCLUSION

This study identified parents' preference for person to person contact when seeking health information relating to their child, particularly when he/she is generally sick or

in an emergency situation which compromises the child's health. Frequently providers of this information are registered nurses, emphasising the need for these nurses to ensure their currency of practice; familiarity with policy and health care networks; and their ability to communicate effectively.

More extensive studies are required to validate the study's findings. It is also important that those seeking to disseminate CHI take parents' preferences – in sources from which to access this information – into account. A further recommendation is that nurses working with parents and children (and more generally) continually update their knowledge and ensure their ability to provide health information in an informed, 'user friendly' manner, recognising the value parents place on it and their reliance on its quality.

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WARFARIN USE IN THE ELDERLY: THE NURSES' PERSPECTIVE

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ABSTRACT

Objective:

To explore the barriers to warfarin use from the perspective of nurses working in aged care.

Design:

A qualitative study, involving a semi-structured group interview, during March-April 2001.

Setting and Subjects:

Eleven nurses, employed within the catchment of the Northern Sydney Area Health Service, who were involved in the care of elderly warfarinised patients.

Main outcome measure:

Identification, via thematic analysis, of the main themes underpinning the nursing perspective on warfarin use in this setting, with regard to their perceived role/s, experiences with patients, and potential strategies for managing the therapy.

Results:

Five main themes were identified: *perceived patient attitude toward warfarin; barriers to the use of warfarin; expressed lack of confidence in the processes involved; nurses' role in warfarin use*; and strategies to improve warfarin use. Nurses were concerned about warfarin use in the elderly, but felt they had a limited capacity to intervene.

Conclusion:

Nurses are potentially underutilised as a resource and support for both patients and prescribers, in the management of warfarin therapy.

INTRODUCTION

Nowadays, the professional role of nurses is quite diverse, ranging from patient care on the ward or in the community, through to specialist services in the capacity of clinical consultants, specialists, educators, and practitioners. However, there is one clinical area, within Australian practice, that has not utilised the nursing profession to its fullest potential: anticoagulant therapy.

Although nurses may work in anticoagulation clinics or in post-acute care teams that liaise with anticoagulated patients, the extent to which they engage with warfarin therapy appears to be somewhat restricted and perhaps superficial. This is unfortunate, as nurses maintain a unique relationship with patients, which is unlike other health professionals.

Internationally, there has been greater appreciation of the nurses' role in this setting, including nurse-led anticoagulation monitoring systems (Brown et al 1998;

Connor et al 2002; Hennessy et al 1998; Taylor et al 1997), hospital-based nurse practitioner-led anticoagulation services utilising computerised decision-support systems (Vadher et al 1997), and nurse-led near patient testing in GP surgeries (Fitzmaurice et al 1998).

Exploring the role of allied health professionals, particularly nurses, in this clinical area has become paramount as the number of patients requiring anticoagulation, for common indications such as atrial fibrillation (AF), is increasing. Despite pivotal evidence to support the use of warfarin therapy in AF (Atrial Fibrillation Investigators 1994; Hart et al 1999), several Australian studies have demonstrated that, even in the absence of apparent contraindications, warfarin therapy remains underutilised (Ang et al 1998; Elliott et al 1999; Stewart et al 1999), particularly in the target population of elderly patients with AF (Bajorek et al 2002). One reason for this suboptimal use includes a lack of support services to assist both prescribers and elderly patients with the initiation and subsequent management of this therapy.

AIM

In view of the recognised underutilisation of warfarin therapy in the elderly, and lack of local support services, the aim of this study was to explore the issues surrounding the long-term use of warfarin in elderly patients by examining, in depth, the unique perspectives of nurses working in aged care. The specific objectives were to: describe nurses' experiences and attitudes toward the use of warfarin in elderly patients; explore nurses' perceptions regarding the risks and benefits of warfarin therapy in elderly patients; identify any 'barriers' to the long-term use of warfarin as perceived and/or experienced by nurses; and investigate nurses' perceived roles regarding warfarin therapy.

METHOD

Study Design

In this qualitative study, a group interview (focus group) was conducted to draw upon attitudes, feelings, beliefs, experiences and reactions in a way that would not be feasible using observation, one-to-one interviewing, or questionnaire surveys alone (Morgan and Kreuger 1993). A semi-structured process was used where each discussion was moderated by a facilitator, co-facilitator, and scribe using a set of broad open-ended questions to elicit the nurses' experiences with warfarin, and their opinions on how warfarin use could be optimised. These questions reflected the pre-determined research objectives and were pre-tested in mock interviews.

Demographic data was collected separately using a specifically designed questionnaire. Each session was tape-recorded with additional note-taking by the scribe, who also observed and noted any non-verbal behaviour (facial expressions, body language, paralanguage etc) that reinforced significant statements.

Recruitment of Participants

Nurses involved in the inpatient and/or outpatient management of elderly patients were recruited via study flyers displayed in key locations around the project hospital and larger community, including the: aged care ward, community aged care assessment team, acute post-acute care team that oversees the hospital-to-community care of warfarinised patients, and community nursing services. Additionally, information was conveyed during weekly clinical meetings, departmental seminars, and ward rounds. Sampling was opportunistic to capture the key nursing population, and purposive to find nurses willing to discuss their experiences; each was screened upon enquiry, to ensure that they worked with warfarinised elderly patients, by asking for a brief description of their experiences.

Participants provided their informed written consent to take part and, to compensate for any losses incurred by attendance (eg., time off during working hours, loss of lunch hours, travel costs) all were offered a nominal payment of $25.00, additional reimbursement of travel expenses, and a light meal. The study was approved by the institutional human research and ethics committee.

Data analysis

The audio-taped discussion was transcribed verbatim, then manually analysed to identify emergent themes. Thematic analysis breaks the text down ('reduction') into defined units (words, statements) that are categorised into themes. A phenomenological approach was used, focusing on understanding the essence of experiences about a phenomenon via statements, meanings, themes, and general descriptions of the experience (Husserl 1931; Moustakas 1994).

To ensure the conclusions drawn from the analysis were valid (ie. consistent with the actual content and grounded in data) two of the investigators (acting as co-facilitator and scribe) observed the discussion and then independently reviewed the transcripts to identify relevant themes, issues and supporting statements, before jointly discussing the findings to attain a consensus. The findings were checked against the supplementary notes taken by the scribe and also reviewed by the main facilitator, then fed-back to nurses to ensure the accuracy of the session's interpretation.

RESULTS

Participants

In total, 11 nurses working in aged care (all female), representing each of the main nursing services participated in the study; their mean age was 42.5 (+/- 10.4) years (range 25-54 years). Three nurses worked on an aged care ward; two worked as aged care clinical nurse

specialists/consultants; four worked for a home nursing service; and two worked as hospital-to-community liaison nurses. On average, the group had 18.9 (+/- 11) years (range 3.5 - 33 years) professional experience working with elderly warfarinised patients.

Perspectives of Nurses – Emergent themes

These nurses focussed on five main themes during the group interview: *Perceived patient attitudes towards warfarin; Barriers to the use of warfarin; Expressed lack of confidence in processes involved; Nurses' role in warfarin use; Strategies to improve warfarin use.*

Theme 1: Perceived patient attitudes towards warfarin

Nurses observed that patients' involvement in their warfarin therapy ranged from absolute dependence on external direction and support, through to complete engagement in the management processes. Some patients appeared to become complacent toward warfarin after a period of time. Nurses believed that patients were generally familiar with what type of medication warfarin was (a 'blood thinner'), although they did not always understand why it was prescribed for them.

It was perceived that patients' knowledge of warfarin was focused more on the practical aspects of dosing, rather than the indication for use or associated risks. Nurses also felt that most patients were also unfamiliar with the actions to be taken when problems, such as bleeding, arose.

We usually see them of a night-time as their dose is adjusted and they say 'why am I having two tablets tonight and I had three tablets last night?'

They know what it is, but their usual difficulty is that they've had a bang to the skin and they can't stop the bleeding.

Some of them are actually monitoring —they take down their international normalised ratio (INR) as well.

There are often people too, who have been on it for donkey's years following heart surgery…they are a bit lackadaisical.

Nurses felt that patients overall were accepting of their warfarin therapy, recognising its importance. Only a few patients protested about it: 'At times it is fairly clear they don't want to be on it.' Day-to-day dosing issues, on a background of poly-pharmacy and impaired memory, were the perceived sources of disquiet and dissatisfaction for many patients.

Some patients talk about how they hate to take medications per se, a number of tablets or…every day or two times a day, it's that kind of issue for them…not one specific tablet…'Why do I have to take six this morning, I only had to take five yesterday morning?', as opposed to what they are taking, it's just the number they take.

The nurses perceived that most patients were, however, unperturbed about the risk of bleeding, even to the point

Table 1: Perceived barriers to warfarin use
Functional patient barriers
The only thing that probably stands out like a sore thumb would be somebody who had an excessively high fall risk. It might trigger a few questions…
It's one of those things that you always remember…patient in his late 70's…in the middle of the night had gotten out of bed…he must have been going to the toilet…fallen down the stairs…bled to death.
Cognitive barriers
I've got a bit of a bee in my bonnet about cognition, unless they have a person who is a carer…I think it is risky, isn't it? It is something that often gets overlooked in a hospital situation…people present quite well but then are taken out of the confines of the hospital bed.
Poly-pharmacy
They start on warfarin…in hospital and they'll come home and think 'I've got a niggle in my knee, I'll just take some [naproxen] or [diclofenac]' and they don't realise the interactions.
A lot of the elderly are taking herbal supplements and things…they don't think they are drugs.

of ignoring precautionary measures, that is, until serious adverse events occurred. Bruising was a commonly registered complaint, albeit due to cosmetic reasons: *'Some of the women they get those little bleeds under the skin and they hate the disfigurement.'*

According to nurses, patients felt powerless in terms of the decision-making process and hence did not express their dissatisfaction being on the therapy. It appeared to these nurses that patients rarely challenged health professionals about being on warfarin therapy per se, but rather queried dosing issues once a problem had arisen. It was perceived that a good relationship with the general practitioner (GP) was necessary to empower patients to voice their concerns.

A lot of the older patients – 'my doctor says it is good for me so I'll take it…they are an expert'…are pretty bad because they don't ask questions.

They just don't voice a concern about taking it because they don't see they have any other option…just part of the treatment that's been prescribed…they have to put up with it.

One patient…pretty responsible and tells the GP…he rings up and gets his INR organised…he had a huge bleed and actually challenged the doctors that he was on too high a dose.

Theme 2: Barriers to the use of warfarin

Nurses described several sources of difficulty regarding warfarin use (table 1).

Table 2: Nurses expressed lack of confidence in processes

Lack of confidence in patient assessment processed regarding warfarin initiation

I just wonder how much you would have an opportunity to challenge…if the person has cognitive impairment or depending on their home situation…how much that's taken into consideration.

Quality of life, if they are 95 years of age, in a nursing home, they are being stabbed every three days, they are probably going to have a fall once a week, what are we doing for them?

The doctors all roll up at 9 o'clock in the morning to do their rounds — 'yep they can go home…there are five other people down in A&E waiting to come up, let's ship them down to transit lounge.' —they get home and open up this little plastic bag with all their drugs…pharmacist hasn't had a chance to talk to them…we haven't seen what they're on…pressure to get them out.

Patient Education

Education in the hospital ward…you are asking a lot when somebody is in a four bedded room…[pharmacist] trying to explain something to you…you can't hear, you can't sleep very well…probably not the best place for you to have all this stuff explained to you…only so much we can do, it's just too hectic.

How much education do the local chemists do? That is where these people go and get their drugs.

Follow-up in the community: GPs versus other services

If they have a good relationship and the GP takes…a bit of an interest in the patient and the patient takes an interest in their own health, then that works. But if you get a fall down in any of those things…they don't get monitored very well.

Less GPs do home visits…people have trodden off to medical centres…interaction is more rushed.

We are in the link with the haematology department…they follow-up the patient…once a week to a fortnight . Do INRs every day or every second day and then they are discharged to their GP who will organise for an INR to be done…Or we liaise directly with the GPs and do daily INRs and the GP will see a patient as soon as they are discharged…home visit or the patient will see the GP.

The risk of falls was considered to be a major hazard in the elderly, as well as functional and cognitive impairment. Surprised and concerned, nurses also described that they frequently saw patients who were warfarinised despite some degree of cognitive impairment and apparent memory problems. Intact cognition was vital to safe warfarin use both in a practical sense and in terms of successful patient education.

Nurses expressed doubt about the ability of a patient to cope with warfarin therapy in the home environment, given the perception of poor in-patient assessment prior to its initiation. Problems with cognition were not the only factors they felt increased the risk of misadventure with warfarin. INR control was affected by concomitant medication use.

Table 3: Nurses' perceived roles in warfarin therapy

Level of current input within the hospital setting

If it is written up I get it out and give it to them…God knows we have enough to do without looking up these extra things like should they be on warfarin.

I give out what is charted pretty much…the standard pink form, if it needs charting we'll look up the INR, write it down and write 'would doctors please chart it'…if you find out what the INR is and then they just look at the little box…probably what we could very easily do ourselves.

Level of current input within the community setting

We don't actually say to put them on warfarin…we only get them when they are already on warfarin really…they continue. It's more about patient education.

We liaise with the GP on a daily basis and use the guidelines from the hospital…for anticoagulation and we can't say to the doctor — 'this is what is recommended'…but we fax them the guidelines and we try and persuade them to keep within those guidelines.

I had an incident over the weekend where a GP had prescribed a large dose of warfarin for a lady who had been quite unwell. I actually rang him, not challenged, but asked him was he sure that was the dosage he wanted…'perhaps we can do an INR sooner rather than in three days, we could do one tomorrow'…we've got an opportunity to work that closely with the doctors

Opportunity to intervene

Generally the GPs and the hospital have made the decision if they want to warfarinise the patient subsequent to heparinisation or straight on to warfarin. As for us initiating it —no.

I have found that in the community there is generally more opportunity for nurses to have that input…you get to liaise with the GP.

Theme 3: Expressed lack of confidence in processes involved

Following from the earlier concerns, nurses expressed that they were not confident about the processes involved in initiating patients on warfarin, nor with the services provided by other health professionals (table 2).

Some nurses questioned whether clinicians adequately considered some of the cognitive and functional barriers to warfarin use in older patients. An over-burdened public hospital system was perceived as the cause of compromised assessment and preparation of elderly patients, both in terms of education provision and organising follow-up services.

Nurses also questioned the quality of education that elderly patients received on the wards by pharmacists, stating that more effort was needed in order to eliminate unnecessary intrusions. Community pharmacists, who were considered to be in the most opportune position for ongoing education and counselling, were not perceived to be a reliable 'back-up' system for these patients.

Much emphasis was placed, by these nurses, on the role of the GP to adequately educate, monitor and follow-

up older patients, but the success of this process depended on their relationship with the patient. These nurses, however, believed that efficient support systems, particularly for INR monitoring, were widely available and catered to most patient situations.

Theme 4: Nurses' role in warfarin use

Nurses agreed that, on the whole, they had little input into the prescribing of warfarin for their patients (table 3).

They were generally unaware of the indications, or the existence of guidelines, for warfarin use, albeit recognising that more of their elderly patients were being prescribed it for AF. At the ward level, nursing involvement was limited to prompting the doctors to check INR results and dosage administration.

Consistent with this focus on the practicalities of warfarin use, nurses relied on 'tools' such as medication charts and *'the pink form that we use in the hospital that gives you guidelines that gives you what dosages people should be on',* to assist them in this. They maintained a very patient-centred and pragmatic attitude toward their role in this setting. Those who worked in the community setting, particularly on a hospital-to-community liaison basis, reported greater involvement due to increased opportunities to liaise with GPs. However, their primary commitment was still to ensuring appropriate patient care.

Although the nurses felt they were qualified to take a greater role in monitoring and assessing patients, both in acute and long-term care, they felt under-resourced within their establishments to do this effectively. Furthermore, these nurses did not desire a greater role in the use of warfarin, as they felt this was the entirely the doctor's role. As far as they were concerned, the doctors were responsible for making the decisions, whilst nurses were responsible for 'follow-up'.

However, many nurses felt they were in a prime position to identify patients who were having problems, although they did not feel authorised or resourced enough to address these needs adequately.

Occasionally patients are on contraindicated medication and you pick up on it when you visit them…and sometimes they double dip on the doctors as well.[ie. see more than one doctor.]

You need to be twice as vigilant when you are checking the medications in the home situation…what's there, what they are supposed to be taking as opposed to what they might be taking.

Patients coming in on herbals usually have a whopping great big bag full of them. They'll have four medication charts and the family will be insisting they stay on them…and the poor patient is saying, 'I don't want that many, I'm sick of having them, I don't want it.' And you think, 'if it was up to me love, I'd just chuck them all in the bin.'

Theme 5: Strategies to improve warfarin use

To assist warfarin use in the elderly, nurses felt more could be done in the way of education. In particular, more effort was required in getting patients to refer to the warfarin booklets for advice. They felt it was also crucial to encourage patients and their carers to take a more active role in their own therapy.

Prompt people to have [INRs] done…[to be] aware of the side-effects of warfarin and the risk of injury or bleeds, but they need to be educated in this way.

One of the things that I often tell the patient, is that you are responsible, nobody else is, for your blood tests and everything…it will make them remember.

Given that 'education is useful for people who can understand and who can carry out instructions, but education is useless for people with dementia…even if you educate them, they forget', nurses felt that a greater utilisation of carer support and services was vital. The perceived role of carers, whether the patient's relatives or professional agents, ranged from the simple tasks of dosage administration to ongoing patient surveillance. It was felt that performing home visits to patients was particularly important in terms of patient surveillance.

A lot of them need the help of some nurses actually to go in…and give the pills…even with the [blister] pack a lot of elderly people have no idea how to press the tablet out…home nurses have to go in just to press the tablet out for the client.

Sometimes their partner, the same age, is half demented and doesn't really know what is going on. They can't see or they can't understand so a community home nurse can actually monitor the blood test and then the dosage…they play a very important role in doing that.

Others believed that there needed to be a more thorough assessment of older patients prior to discharge, particularly with respect to cognition, in order to ascertain their ability to cope with warfarin at home.

Guidelines…if someone does have a cognitive problem, that they actually be investigated, if they live alone, to see that they are okay to be put on warfarin and are there any other options.

We had a self-administering program trial that was running down there in terms of medications…'Going home? Let's start getting them self-administering with supervision in the ward. Can they read the chart first? Have they got spectacles that are new? Do they understand what is going on?' And if they are doing it right for a week in hospital, then I would feel comfortable sending them home. I think that is something that could be trialled.

DISCUSSION

Although previous studies have explored the perspectives of prescribers (Lip et al 1996; McCrory et al

1995; Peterson et al 2002), none have probed further to identify the experiences and perceptions of allied health professionals regarding the use of warfarin in the elderly population. This is the first known study to have examined the perspectives of nurses in this setting.

Overall, nurses in this study appeared to be quite fearful of warfarin, expressing hesitation and concern about their patients being warfarinised. This in part reflected their expressed lack of awareness regarding the specific indications for warfarin therapy, and in part their acute awareness of the difficulties associated with its use in the elderly, given their level of patient contact. Those who had extensive opportunity to assess patients' abilities in activities of daily living most explicitly stated that the risk of misadventure with warfarin increased with age-related frailty, functional and cognitive impairment, a predisposition to falls, potential non-compliance, poly-pharmacy, and a general lack of education. Nurses expressed doubt as to how well these factors were assessed or addressed by prescribers when warfarin therapy was initiated.

Despite their concerns about the decision-making processes regarding initiating warfarin in any patient, nurses generally believed that they had no role here. They conceded that this responsibility was entirely the prescriber's, and if nurses had any involvement at all, it was merely to confirm the prescriber's intentions if there was any doubt.

Community based nurses had some involvement in the short term follow-up of patients for blood testing and dosage adjustment, while hospital based nurses stated they simply administered prescribed doses, after reminding doctors to chart these. They were motivated to intervene only when they felt warfarin should be ceased, so cessation rather than treatment initiation was their focus. This was further compounded by their lack of awareness of the specific indications for therapy, such as stroke prophylaxis in atrial fibrillation.

Although nurses entirely relied on prescribers to appropriately manage the patient over the long term with respect to routine INR testing, subsequent dosage titration, and pharmacovigilance, they expressed doubt as to how well doctors were doing this. They felt the current nature of health care, both within the hospital and community settings, was not conducive to detailed and individualised patient care, as seen to be necessary here. Consequently, nurses felt the barriers to warfarin use included not only the patient-related characteristics, but also the lack of support services in the community to assist patients. They themselves felt prescribers could make greater use of existing allied health services (nurses and pharmacists), particularly within the community.

Unlike previous studies, this research acknowledges that the use of warfarin involves players other than just the prescriber and patient. Nurses are often the interface for medication-related problems, and as such should also play an important role in the administration and monitoring of warfarin therapy. This is often overlooked, but is pertinent in view of anecdotal requests for increasing the role of allied health care professionals. Acknowledging that many individuals are involved is a prerequisite for understanding that there are a multiplicity of perceptions and experiences relating to warfarin use.

LIMITATIONS OF THE STUDY

As in all qualitative studies, the researcher has less control over data collection since participants must be allowed to interact with each other. In some cases an emerging *'group culture'* may interfere with individual expression and then *'group-think'* occurs (Frey and Fontana 1994). Therefore, there may be some uncertainty as to whether the identified themes actually describe the participants' true opinions (Krueger 1997).

Further, participants may have been 'steered' into particular points of view if they felt any of the researchers maintained *'strong ideological predispositions'*. However, careful planning and moderation of the focus groups should have prevented this. The ability to generalise in relation to these findings for a whole population may be limited by the small numbers of nurses involved in this study, which may not represent the wider nursing profession.

CONCLUSION

Overall, nurses currently maintain a limited role in the anticoagulant therapy of elderly patients. In view of the many difficulties associated with warfarin use, such as patient characteristics, as well as the expressed lack of confidence in prescribing processes, there is scope for nurses to be more involved in decision making processes, for both long term monitoring and management, and to assist prescribers and patients.

Recommendations for practice

The limited engagement of nurses in this clinical area is surprising and somewhat disappointing. Further education to increase nurses' knowledge about warfarin therapy, and pharmacology in general, as well as the development and implementation of multidisciplinary interventions involving nurses to ensure appropriate hospital-based prescribing and post-discharge management, is needed. Encouragement of nurses to take on more pro-active roles in this area is also warranted.

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PREDICTORS OF DIETARY AND HEALTH SUPPLEMENT USE IN OLDER AUSTRALIANS

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ABSTRACT

Objective:

This study aimed to identify the health conditions and symptoms that predicted dietary and health supplement use in older Australians.

Design:

Almost 2,500 Australians aged 65 years and over were randomly selected from the 2000 Australian Electoral Commission roll. All states and territories were proportionally represented in the sample. Data were obtained using a self-administered postal survey.

Subjects:

Approximately 1,200 individuals (51% males and 49% females) aged between 65-98 years completed the survey.

Results:

At the time of survey, 43% (n=548) reported using some form of supplement. Supplement use was significantly associated with gender (female) and chronic musculoskeletal ailments such as arthritis, osteoporosis and generalised back or neck problems. A diagnosis of hypertension or a heart condition were significant barriers to supplement use in this sample. The most common potential drug-supplement interaction was between calcium supplements and antihypertensives.

Conclusion:

Older supplement users may be of the opinion that supplements offer relief from the pain and suffering associated with their medical problems. If so, current supplement patterns would indicate that they are misguided. Nurses have an important role to play in encouraging older individuals to disclose their use of supplements to all health professionals involved in their continuing care.

INTRODUCTION

In the year ended 2000, Australians spent AU$1671 million on dietary supplements, herbal medicines and natural products, which exceeded the expenditure on pharmaceutical drugs (MacLennan et al 2002). Despite widespread utilisation of these products by the community, surprisingly little is known about the extent to which older Australians specifically use dietary supplements and herbal medicines (referred to as complementary medicines by the Therapeutic Goods Administration) as forms of self care.

Several national and regional investigations have estimated the use of dietary supplements and herbal medicines in the Australian community. However, few have reported on the prevalence of supplement use in the older age group. Rates of regular supplement usage are between 16%-45% for the general adult Australian population (Allen et al 1987; Worsley and Crawford 1984), compared with 20%-40% for individuals aged 60 or 65 years and over (Baghurst 1989; Horwath and Worsley 1989).

Numerous large-scale international studies have shown that older individuals utilise vitamins, minerals and other health preparations as forms of health care in higher proportions than the general adult population (Looker et al 1988; Stewart et al 1985; Subar and Block 1990; Bender et al 1992; Slesinski et al 1995; Ervin et al 1999).

There is a paucity of data on herbal medicine use by older Australians. The Australian National Health Survey found that 12% of participants aged 65-74 years reported the use of 'herbal/natural' products (not defined), in the previous two weeks (ABS 1995). In the United States of America, several studies have shown that older individuals regularly use preparations containing Echinacea, Garlic, Gingko Biloba, Ginseng, and St John's wort (Ervin et al 1999; Leak 1999; Winslow and Kroll 1998; Brevoort 1996).

Characteristically, older dietary supplement users are female, Caucasian and well educated, with healthier lifestyle practices than non-supplement users, and are less likely to be overweight or to smoke (Looker et al 1988; Hale et al 1982; Houston et al 1998; Freeman et al 1998; Horwath and Worsley 1989). Neither income nor self-rated health status are reliable predictors of supplement use in this group (Read and Graney 1982; Houston et al 1998). In a large population survey of Americans aged 65 years and over, nutritional supplement users reported a significantly higher use of medications than non-supplement users (Gray et al 1996).

The rate of disclosure to physicians about the use of dietary and herbal preparations is not well understood. Current data suggests that underreporting this use is prevalent among the general adult population. According to Giveon (Giveon et al. 2004), 45% of general practice patients who used supplements never reported their use to their physician. Furthermore, approximately half (49%) were also taking prescription medication and the majority (56%) believed that supplements were safe and free of side effects.

One small study of elderly American veterans found that more than one-third (35%) of dietary supplement users had not informed their health care providers about the use of these products (Ly et al 2002). Of concern is the particularly high rate of non-disclosure of herbal medicines. Klepser et al (2000) found that more than 60% of general practitioner patients who used herbal medicines did not discuss this with their doctor. Distrust and lack of rapport are frequently cited reasons that herb use is not disclosed to practitioners (Eisenberg 1997).

Concurrent users of conventional medication and dietary and/or herbal preparations, who do not report this use to their doctor, may be at greater risk of an adverse drug-supplement interaction. Given the high utilisation of medications in this population and the age-related changes in drug absorption, clearance and distribution, drug interactions probably represent the greatest safety risk with the use of these preparations (Bratman and Girman 2003). Encouraging older people to disclose their use of complementary medicines to health professionals is an important step toward minimising any risk associated with the use of these products.

The aim of this paper is to identify the health determinants that predict the use of dietary and health supplements in older Australians and to evaluate the potential risks associated with this use. Thorough questioning of those most likely to use supplements can assist efforts to reduce the potential for drug-supplement interactions in this age group and will facilitate education about the appropriate use of supplements. Nurses are well positioned to facilitate appropriate assessment and evaluation of the use of these preparations by older individuals.

METHOD

The survey methodology has been reported elsewhere (Brownie and Myers 2003; Brownie and Rolfe 2004). Briefly, in January 2001 the questionnaire was posted to a proportionally random selection of 2,457 Australians aged 65 years and over, stratified by State and Territory from the 2000 Australian Electoral Commission roll. Completed surveys were received from 1,263 elderly Australians. This represents a response rate of 62% after allowing for confirmed non-deliveries. The survey instrument was designed to obtain information about health and lifestyle practices of older Australians and their utilisation of dietary supplements and health supplements.

Respondents were provided with a list of 11 different health conditions (arthritis/rheumatism, type I diabetes, type II diabetes, stroke, cataract, cancer, a heart condition, hypertension, hypercholesterolemia, glaucoma and osteoporosis) and asked if they had ever been diagnosed with any of these conditions (yes or no). They were also asked to report on their use of 26 prescription or over-the-counter medications and their experience of 23 symptoms. The results presented in this article reflect medication used daily or regularly (often, but not every day) and symptoms experienced daily or often ie. 'every day', 'every few days', or 'once a week'.

Information about dietary and health supplement use was obtained by asking participants 'Do you take any of the following types of supplements; vitamins, minerals, herbal preparations or other health products?' (collectively referred to in this study as *dietary and health supplements*). Examples of each type of supplement were included in the questionnaire.

Possible and potential drug-supplement interactions

Supplement users were classified as having the potential for an interaction if they reported the use of a prescription or over-the-counter medication for which there was evidence of an interaction in any of the following books; *Handbook of herbs and supplements and their therapeutic uses* (Bratman and Girman 2003), *Handbook of herbs and natural supplements* (Skidmore-Roth 2001), *Clinical guide to nutrition and dietary supplements in disease management* (Jamison 2003), *An Evidence-based approach to vitamin and minerals* (Higdon 2003), and *Herbs and natural supplements* (Braun and Cohen 2005). The most recent publication, *Herbs and natural supplements* (Braun and Cohen 2005), is the most comprehensive guide available on this topic and is a highly recommended resource for health professionals concerned with the management of individuals concurrently using orthodox and complementary medicines.

Table 1: The ten most commonly consumed supplements in a national sample of older Australians							
Supplement			Males		Females		Sig.
	n	%	n	%	n	%	
Vitamin C (+/- bioflavonoids)	142	26	58	41	84	59	0.012*
Multivitamin/mineral	96	17	44	46	52	54	0.312
Fish oil/omega 3	93	17	39	42	54	58	0.076
Vitamin E	90	16	41	46	49	54	0.302
Calcium (+/- Vitamin D)	73	13	13	18	60	82	0.000**
Garlic (capsules or oil)	59	11	30	51	29	49	0.993
Vitamin B (single or mixed)	52	9	19	36	33	63	0.036*
Single vitamin or single mineral[1]	43	7	15	35	28	65	0.034*
Zinc	34	6	13	38	21	62	0.138
Gingko biloba	28	5	13	46	15	54	0.633

1 other than those listed in the questionnaire
* p=<0.05
** p=<0.005

DATA ANALYSIS

The Statistical Package for the Social Sciences for Windows (SPSS Inc. Chicago, version 10.0, 1999) was used to conduct the data analysis. Descriptive statistics were used to report the general demographic and key health features of the sample and included frequencies (counts), percentages, means and standard deviations. Chi-square analyses were conducted to measure the relationship between gender and dietary and health supplement use. The dichotomous dependent variable (any supplement use versus non use) was entered into binary logistic analyses, using backward elimination (with likelihood ratio criteria), to explore the relationship between any supplement use and the independent variables (e.g. health conditions and symptoms experienced), after controlling for gender. For all statistical tests, a significance level of p<0.05 was used.

RESULTS

Gender divided the sample into two almost equal groups ie. 51% males (n=641) and 49% females (n=622). Respondents were aged between 65 and 98 years. For males, ages ranged from 65-98 years with a mean age of 73 years (SD 6.21). For females, ages ranged from 65-95 years with a mean age of 74 years (SD 6.76). Males and females did not vary significantly (x^2(df:3)=5.85, p=0.119) in the distribution of ages across decade age groups.

General features

The general features of the sample have been reported elsewhere (Brownie and Myers 2003). Briefly, the majority of the sample was living with his or her partner only (61%), with some secondary school education

(43%), with an income prior to retirement in the range of $20,000-$39,000 (45%) compared with an income after retirement of less than $19,000 (57%). Almost three quarters (73%) were born in Australia. The demographic features of the sample are consistent with that of the general population of older Australians, with the exception of the distribution of gender (ABS 1995). The proportion of males in this sample (51%) was slightly higher than in the general population of Australians aged 65 years and over (44%) (ABS 1999).

Supplement use

In total 45 different categories of supplement types were reported. Table 1 lists the 10 most commonly used supplements and shows the proportion of males and females using each supplement type. Not shown in this table are those preparations reported by fewer than 5% of supplement users, including the following herbal preparations St John's wort, Valerian, St Mary's thistle, Echinacea, Brahmi, Saw palmetto and Ginseng.

Compared with males, females were significantly more likely to report the use of vitamin C (x^2 (df:1)=6.34, p=0.012), calcium (x^2 (df:1)=33.74, p=0.000), B vitamins (x^2 (df:1)=4.41, p=0.036) and single vitamins or minerals (x^2 (df:1)=4.51, p=0.034) (other than those listed in the questionnaire).

Predictors of supplement use

Binary logistic analyses were used to identify predictors of supplement use. Table 2 shows the odds ratios for each of the significant independent variables in the model. Gender was the most predictive determinant of supplement use. The odds of taking any supplement were significantly higher for those with arthritis (OR 1.47, CI 1.16-1.85) and osteoporosis (OR 2.06, CI 1.40-3.04). Only one of the 23 listed symptoms, 'trouble with the

Table 2: Significant health conditions, symptoms experienced and any supplement use in a national sample of older Australians

Variable	Odds ratio	Sig.	95% Confidence interval
Health conditions			
Female	1.78	0.000*	1.41-2.26
Arthritis	1.47	0.001*	1.16-1.85
Osteoporosis	2.06	0.000**	1.40-3.04
Hypertension	0.78	0.042*	0.62-0.99
A heart condition	0.75	0.044*	0.56-0.99
Symptoms			
Female	2.09	0.000**	1.65-2.61
Trouble with back, neck or spine	1.64	0.005*	1.16-2.33

* p=<0.05
** p=<0.005

Table 3: Possible and potential supplement interactions in a national sample of older Australians

Supplement (n=)	Drug	Consequences of interactions	No. of potential (n=548)
Vitamins			
Vitamin A (n=6)	Anticoagulants	May increase anticoagulation effects of Warfarin	0
Vitamin C (n=142)	Anticoagulants	Large doses inhibit action of Warfarin	5
Vitamin E (n=90)	Anti platelet Anti coagulants	High doses potentiate the action of these types of medication and may increase clotting time	6
Minerals			
Calcium (n=73)	Antibiotics	Calcium may interfere with absorption of antibiotics in the tetracycline and fluoroquinolone classes	2
	Anti hypertensives	The action of calcium channel blockers may be affected by high dose calcium	30
		Calcium may reduce blood levels of atenolol and other beta blockers	
Zinc (n=34)	Antibiotics	Zinc can interfere with the absorption of tetracyclines, fluoroquinolones and penicillamine	3
Nutritionals			
Fish oils (n=93)	Anti platelet Anticoagulants	High dose fish oils may increase bleeding when taken with these types of medication	2
Garlic (n=59)	Anti platelet Anticoagulants	Garlic possess anti thrombotic activity and may increase bleeding when taken with these types of medication	2 2
	Hypoglycaemics	Because of the hypoglycaemic effect of garlic, dosages of insulin and oral hypoglycaemics may need to be adjusted	5
Herbals			
Gingko (n=28)	Anti platelet Anticoagulants	Gingkolides inhibit platelet-activation factor and may potentiate bleeding	0
St John's wort (n=5)	Amphetamines	May cause mild serotonin syndrome	2
	Immunosuppressants	May cause decreased plasma cyclosporin concentrations and transplant rejection	
	MAO's	May reduce MAO inhibition	
	SSRI's	May cause mild serotonin syndrome and have additive effect	
	Tricyclics	May cause mild serotonin syndrome	
Valerian (n=8)	Anticoagulants	May reduce MAO inhibition	2
	MAO's	May reduce MAO inhibition	1
Total			**62**

(Bratman and Girman 2003; Skidmore-Roth 2001; Higdon 2003; Jamison 2003; Braun and Cohen 2005)

back, neck or spine', predicted supplement use (OR 1.28, CI 1.09-1.67). A diagnosis of hypertension (OR 0.78, CI 0.62-0.99) or having a heart problem (OR 0.75, CI 0.56-0.99) were significant barriers to supplement use.

Drug-supplement interactions

It is important to clarify that the number of potential interactions shown in Table 3 indicates the total number of supplement users who reported daily or regular use (often, but not every day) of any of the 26 different types of medications, eg. 'antibiotics', 'blood pressure tablets', 'cough medications', 'pain relievers', 'sleeping tablets and sedatives' etc. The absence of data about the specific name or class of drugs used by study participants precludes an accurate assessment of possible interactions. Data shown in Table 3 reflects the number of supplement users potentially at risk of a drug-supplement interaction and the scope and consequences of interactions associated with the use of dietary and health supplements in this sample.

DISCUSSION

This is the first national study to focus on identifying the health predictors of supplement use in older Australians. Supplement use was reported by 43% of the sample: 52% (n=324) of females and 35% (n=224) of males. The types of dietary supplements used most often by older individuals, both here and overseas, are preparations containing vitamin C, vitamin E, multivitamins/minerals and B vitamins (Horwath and Worsley 1989; Magarey et al 1993; Yu et al 1999; Hale et al 1982; Read and Graney 1982; Ervin et al 1999).

This study found that having arthritis, osteoporosis or generalised back or neck problems predicted the use of supplements by individuals in this sample. Existing evidence supports the benefit of complementary medicines in the management of these musculoskeletal disorders. For example, glucosamine sulphate is effective in relieving joint pain and may retard the progression of osteoarthritis (Blakeley and Ribeiro 2002; Bruyere et al 2003; Pavelka et al 2002; Richy et al 2003).

In therapeutic doses, fish oil exerts an anti-inflammatory action and may afford relief from the discomfort associated with these conditions (Buchbinder et al 2002; Goff and Barasi 1999; Adam et al 2003; Belch 1990). Calcium and vitamin D supplementation can protect against osteoporosis, fractures and falls, and is especially indicated in obese, inactive or housebound older individuals (Heaney 2000; Feskanich et al 2003; Maher 2000; Vieth 1999; Janssen et al 2002; Semba et al 2000).

Interestingly, these types of preparations were reported by fewer than 15% of supplement users with arthritis or osteoporosis. Since conducting this study in 2001, glucosamine supplementation has emerged as an effective treatment for arthritis. It is reasonable to expect a higher use of this product now by current sufferers of this condition.

Some investigations have shown that individuals with chronic conditions such as heart disease, stroke, diabetes and cancer were no more likely to report the use of dietary supplements than those without these conditions (Yu et al 1999; Lyle et al 1998). In fact, Yu et al, (1999) and Houston et al, (1998) found persons with hypertension were actually less likely to take supplements than those without hypertension, which is consistent with the results of this study.

In a previous publication (Brownie and Myers 2003) we reported that 18% and 32% of subjects in the current study only 'sometimes' or 'rarely to never' (respectively) informed their doctor about the supplements they used, which raises concerns about the safety and appropriateness of this action, particularly given the already high utilisation of medication in this age group. Polypharmacy, inappropriate drug use and medication interactions are important determinants of the clinical management of older individuals (Salmond 2002).

Evaluating the risks associated with the use of supplements by the elderly is confounded by the lack of experimental evidence on the topic of drug interactions, the lack of agreement in the literature regarding the dosages at which adverse effects or interactions are most likely to occur, and in respect to nutrient preparations specifically, the uncertainty of not knowing the actual nutrient requirements appropriate for this age group. Some studies using personal interviews have shown that between 33%-50% of dietary and herbal supplement users aged 65 years and over were taking at least one combination of a health product and prescription or over-the-counter drug that could cause an interaction (Ly et al 2002; Dergal et al 2002).

LIMITATIONS

Because of the limited information obtained about medication use in this study, any estimates of the potential risk associated with supplement use need to be interpreted cautiously. Since this study used a questionnaire to obtain this information it is not possible to verify participant responses. At best this study can highlight the potential for interactions to occur, as shown in Table 3, but more rigorous methodology in future investigations is required to quantify this risk. Future investigations need to obtain data about the type and amount of all prescription and over-the-counter medications consumed (including complementary medicines) in order to accurately assess the extent of the risk of drug-supplement interactions. This is particularly relevant for studies involving older people.

CONCLUSION

The use of dietary and health preparations among this sample of older Australians was widespread. Individuals with chronic musculoskeletal problems were significantly more likely to report the use of supplements. The rate of usage of preparations that benefit these conditions was low. A significant proportion of supplement users did not inform their doctor about the products they consumed, therefore the true extent of drug-supplement interactions is unknown. In order to reduce the risk associated with this practice, and to evaluate the appropriateness of the supplements used, nurses should incorporate a thorough assessment of all complementary medicines as part of the history taking and medication review.

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MEDICATION ADMINISTRATION ERRORS: UNDERSTANDING THE ISSUES

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ABSTRACT

Objective:

This paper surveys current literature related to medication administration errors, the role of nurses in such errors, and current initiatives that are underway within New Zealand to address this aspect of patient safety.

Setting:

The literature review focused on research that primarily addresses the issues related to medications that arise in tertiary care facilities.

Primary argument:

Medication administration errors are reported to occur in one in five medication dosages. Such events have long been scrutinised, with the primary focus being the practice of nurses and their role in medication error. Analysis of such events frequently identifies the nurse as the deliverer of unsafe practice. However, over the past few years a shift in how medication errors are understood has led to the identification of systems-related issues that contribute to medication errors.

Conclusion:

Initiatives such as the 'Quality and Safe Use of Medicines' raise the opportunity to address some of the safety related issues with a view to enhancing patient safety. A call for nurses to pre-emptively drive and contribute to these initiatives, along with the development of nursing led research, is offered.

INTRODUCTION

The issue of medication administration (MA) within the acute-care setting has long been the focus of scrutiny and research, in part because medication administration errors (MAE) contribute directly to patient morbidity and mortality (Tissot et al 2003; Barker et al 2002a; Schneider et al 1998). A desire to provide patients with optimum and safe care fuels practitioners and academics alike to create strategies to reduce the likelihood of administration errors occurring. However, MAE continue to occur.

The development of the Safe and Quality Use of Medicines group in Australia in the early 1990s prompted Australian practitioners to review historically-accepted practices surrounding MA and re-configure how they conceptualised the safe use of medicines (Hunt and Parks 1999). In late 2003, New Zealand health care practitioners began to adopt a similar strategy of the same name for addressing medication issues in relation to patient safety. These strategies provide nurses with a unique opportunity to contribute to practice initiatives at the national policy level and enhance the quality of patient care. It is crucial that nurses actively engage in this debate and contribute to the body of knowledge in this area.

This paper examines the issue of MA in the acute-care setting. It highlights: how MAE are defined in the literature, which has historically positioned nurses as incompetent and in need of remedial assistance; common reasons for MAE; and strategies for the prevention of such events. Literature that speaks specifically to the New Zealand context is considered, and a critique of current understandings of nursing practice in relation to MA is offered. The article concludes with a call for research on MA that is focused on, and driven by, nurses.

SEARCH METHOD

The search methods employed for this literature review included both nursing and medical databases. Specific

Table 1: Research measuring medication error rates

Participants/setting	Method of measurement	Prescribing	Preparation	Administration
Nurses: geriatric & cardio-thoracic units (Tissot et al 2003)	Observational	Not observed	Not observed	14.9:100
Nurses: paediatric ICU (Schneider et al 1998)	Observational	Not observed	23:100	32.4:100
Junior medical staff (Davydov et al 2004)	Prospective observational	1.1:100	Not observed	Not observed
Clinical charts and incident reports (Headford et al 2001)	Chart audit Analysis of incident reports	8:100 (of all incidents)	13.7:100 (Ratio of incident classification)	74.7:100 (Ratio of incident classification)
Nurses & doctors: intravenous medication in acute care (Wirtz et al 2003)	Observational	Not observed	26:100	34:100
Medical and surgical units in two tertiary-care hospitals (Leape 1995)	Prospective cohort study	39:100	Not measured	38:100
Doctors, nurses, pharmacist: tertiary-care hospital (Wilson et al 1998)	Prospective cohort study	68:100	7:100	25:100
Doctors, nurses, pharmacist: tertiary-care hospital (Ashcroft et al 2003)	Retrospective analysis of incident reports	22:100	15:100	32:100
All HCP in PACU (Hicks et al 2004)	Secondary analysis of MEDMARX database	22.5:100	5.9:100	59.5:100

databases accessed included: Cumulative Index to Nursing and Allied Health (CINAHL), Cochrane Database of Systematic Reviews, Medline, Proquest, Web of Science, Blackwell Synergy and EBSCO megafile. The key words employed for the search were: 'medication administration', 'drug administration', 'medication administration errors', 'medication safety', 'quality use of medicines', 'nursing and medicines', 'patient safety', 'incident reporting', 'quality improvement strategies', and 'organisational safety'. The literature was limited to English based articles.

Definition of medication administration errors

Multiple definitions of what constitutes a MAE exist in published research and literature. One definition frequently employed by medical doctors of MAE is any deviation from the physician's medication order as written on the patient's chart (Headford et al 2001; Mark and Burleson 1995), which fails to consider that prescribing errors do contribute to MAE (Davydov et al 2004; Headford et al 2001; Wilson et al 1998).

However, the definition typically cited in literature that is authored by nurses is that of Wolf (1989), who defines MAE as 'mistakes associated with drugs and intravenous solutions that are made during the prescription, transcription, dispensing, and administration phases of drug preparation and distribution (Wolf 1989, p.8).

These errors can be classified as either acts of commission or omission, and may include the following:

wrong drug; wrong route; wrong dose; wrong patient; wrong timing of drug administration; a contra-indicated drug for that patient; wrong site; wrong drug form; wrong infusion rate; expired medication date; or prescription error. Such errors can occur in either an intentional or unintentional manner (Wolf 1989).

Medication error rates

The manner in which MAE rates are determined varies greatly and is dependant on the method of measurement employed to assess the error rates. However, observations of practice are considered to be the most accurate way of measuring the occurrence of MAE (Thomas and Peterson 2003; Barker et al 2002b; Flynn et al 2002).

Two such observational studies found that MAE rates in the acute-care setting varied between 14.9% (Tissot et al 2003) and 32.4% (Schneider et al 1998). The medication error rate for intravenous medications is significantly higher than other types of medications, with researchers observing preparation error rates of 26% and administration error rates of 34% (Wirtz et al 2003). The total of all observed medication errors indicates that errors occur in almost one out of every five doses (Barker et al 2002a). Research that has assessed the error rates during either the prescribing, preparation or administration phases of medication handling is further described in table one.

Table 2: Types and ratios of medication administration errors							
Type of error	Research & ratios of factors contributing to MAE						
	Fortescue et al (2003)	Hicks et al (2004)	Tissot et al (2003)	Wirtz et al (2003)	Headford et al (2001)	Wilson et al (1998) PIC statistics	Schneider et al (1998)
Wrong administration rates		5:100	19:100	21.6:100	8:100	7:100	8.7:100
Wrong IV push rate				88:100			
Omission of dose	8.1:100	20:100	16:100	10.6:100	50:100	5:100	1.1:100
Drug compatibility			6:100	10:100		3:100	
Wrong dose	37.1:100	24:100	12:100	10:100	7.6:100	4:100	7.7:100
Calculation errors				12:100			
Wrong drug					5.7:100	1:100	
Wrong patient		2:100			1.9:100		
Wrong time	12.5:100	3:100	26:100	16.9:100	2.7:100	9:100	8.7:100
Dose delayed > 1 hour						49:100	
Wrong route	17.7:100	1:100			1.5:100	1:100	0.7:100
Allergy related error	1.8:100				1.3:100\		
Additional/ unauthorised dose	0.7:100	14:100	13:100		9.3:100		

When addressing the issue of MAE rates, researchers return to standard categories for describing the various ways in which errors occur. These factors cover errors such as wrong administration rates, calculation errors, and wrong dose. Research suggests that the number one occurring error is inaccurate IV push rates, with 88 in 100 doses being improperly administered (Headford et al 2001). Other frequently observed errors included wrong administration rates, which ranged between five to 21.6 in 100 doses (Hicks el al 2004; Wirtz et al 2003), and the omission of dosages, which ranged between 8.1 to 50 in 100 doses (Fortescue et al 2003; Headford et al 2001). The least frequently observed error was an allergy related error, which occurred between 1.3 and 1.8 times in 100 doses (Fortescue et al 2003; Headford et al 2001). Additional statistics that have emerged from a number of different studies are further described in table two.

Factors that contribute to medication errors

Factors that contribute to medication errors are typically divided into two sub-groups: those caused by systems errors, and those caused by individual health care professional issues. Another issue that is worthy of examination in the context of contributing factors is that of incident reporting.

Systems issues

Hospitals are complex systems comprising both human and technological aspects (Clancy 2004a; Freedman Cook et al 2004; Singer et al 2003; Anderson and Webster 2001). Such systems may be thought of as consisting of components that include design, equipment, procedures, operators, supplies and environments (Anderson and Webster 2001), within any of which errors may occur.

The medication process is, in itself, a complex sub-system of a hospital. Prescribing, preparing and administering medications is therefore reliant on a variety of processes intended to ensure that patients receive appropriate treatment. However, if a problem arises in any phase of either an organisational system or the medication process, it increases the likelihood that a patient will not receive the correct medication, compromising their safety.

Experts and researchers alike have identified a number of systems issues that impact on patient safety in relation to MA, including patient acuity levels, available nursing staff, access to medication and policy documentation (see table 3). As a result, acute-care organisations have put systems strategies in place to reduce the number of systems errors (Freedman Cook et al 2004; Sokol 2004; Brush 2003; Revere 2003; Singer et al 2003; Orser 2000). These include, for example, purchasing a single type of intravenous medication pump that requires access to a specific computer program to alter the pump's settings (Brush 2003; Orser 2000). Unfortunately, there is little research evaluating the impact of these systems strategies in reducing the numbers of medication errors.

Table 3: Systems issues that contribute to medication errors	
Systems issues identified	**Supporting research/literature**
Lack of adequate staffing	Committee on the work environment for nurses and patient safety (2004) Vincent (2003) Dean et al (2002) Wakefield et al (1998) Blegen and Vaughn (1998) Leape et al (1995)
Patient acuity levels	Dean et al (2002) Leape et al (1995)
Inadequate access to policy and medication information	Clancy (2004b) Committee on the work environment for nurses and patient safety (2004) American Academy of Pediatrics (2003) Andersen (2002) Cohen and Cohen (1996)
Physical environment: lighting, drug preparation facilities	Hicks et al (2004) Brush (2003) Dean et al (2002) Poster and Pelletier (1988)
Organisational culture	Bagian (2004) Committee on the work environment for nurses and patient safety (2004) Freedman Cook et al (2004) Singer et al (2003) Vincent (2003) Baker (1999b)
Organisational communication channels	Committee on the work environment for nurses and patient safety (2004) American Academy of Pediatrics (2003) King, Paice, Rangrej, Forestell and Swartz (2003) Tissot et al (2003) Vincent (2003) Baker (1999b) Vincent et al (1998)
Organisational routines	Andersen (2002) Baker (1994) Raju et al (1989)
Pharmaceutical related issues	Traynor (2004) Brush (2003) Tissot et al (2003) Orser (2000) Wakefield et al (1998)
Incident reporting culture	Berntsen (2004) Bulla (2004) Freedman Cook et al (2004) Lamb (2004) Mayo and Duncan (2004) Suresh et al (2004) Frankel et al (2003) Webster and Anderson (2002)Anderson and Webster (2001) Pape (2001) Baker (1997) Day et al (1994) Davis (1990)

Within the past decade there has been a shift internationally in how adverse events, including MAE, are understood, and more attention is being paid to organisational systems errors (Vincent 2003; Institute of National Academies 1999). The Veterans Health Administration in the United States of America (Bagian 2004; Vincent 2003), and more recently the National Health System in Britain (National Patient Safety Agency 2003), have completely changed their approach to adverse events.

Instead of focusing on individual culpability, attention is focused on systems issues that contribute to errors, in an attempt to address gaps and failings within a system itself (Vincent 2003). In essence, rather than assigning blame, the intent is to prevent the event from occurring again. The focus on improving systems to avoid errors has led to a marked decrease in the rate of error occurrence (Bagian 2004).

Professional issues

The issues that affect an individual professional's practice are varied and multifaceted (see table 4).

Table 4: Personnel issues that contribute to medication errors	
Personnel issues identified	Supporting research/literature
Understanding of how errors occur	Mayo and Duncan (2004) Tissot et al (2003) Vincent (2003) Andersen (2002) Wakefield et al (1998) Wilson et al (1998) Segatore et al (1994)
Failure to adhere to policy and procedure documents	Hicks et al (2004) Tissot et al (2003) Dean et al (2002) O'Shea (1999) Wakefield et al (1998) Cohen and Cohen (1996)
Number of hours on shift	Mayo and Duncan (2004) Tissot et al (2003) Dean et al (2002) Raju et al (1989)
Distractions	Hicks et al (2004) Tissot et al (2003) Wakefield et al (1998) Segatore et al (1994)
Lack of knowledge about medications	King (2004) Tissot et al (2003) Andersen and Webster (2002) Meurier et al (1997) Leape (1995)
Dosage calculating	Oldridge et al (2004) Wong et al (2004) Preston (2004) Schneider et al (1998) Segatore et al (1994)
Workload	Hicks et al (2004) Mayo and Duncan (2004) Anderson and Webster (2001) O'Shea (1999) Meurier et al (1997)
Care delivery model	Hicks et al (2004) Dean et al (2002) Jarman et al (2002) O'Shea (1999) Bates et al (1998) Ridge and While (1995)

The literature that explores MAE frequently links errors to specific professional traits, focusing on individual practitioner's attributes, skill levels and competencies (Preston 2004; Pape 2001; O'Shea 1999; Ernst, Buchanan and Cox 1991). For example, it is reported that an individual practitioner may contribute to a medication error through a lack of general knowledge about medications (Tissot et al 2003; Meurier, Vincent and Parmar 1997; Leape 1995). This lack of knowledge may include the inability to accurately calculate medication dosages which, according to research, significantly contributes to a nurse's likelihood of making an error (Oldridge et al 2004; Preston 2004; Schneider et al 1998; Segatore et al 1994). This is of particular importance in paediatric settings and neonatal intensive care where drug dosages are determined by body weight.

Incident reporting

The issue of reporting medication errors has been widely debated in the literature (Bulla 2004; Freedman Cook et al 2004; Lamb 2004; Suresh et al 2004; Frankel, Gandhi and Bates 2003; Vincent and Coulter 2002; Webster and Anderson 2002; Anderson and Webster 2001; Pape 2001; Baker 1997; Fonseka 1996; Day et al 1994; Davis 1990) (also see table 3).

It is acknowledged in this literature that the vast majority of accidents are not reported and that near-miss accidents are almost never reported. In part this has been attributed to the fact that, historically, most incident reporting forms require individuals to identify themselves and, if directly involved, accept responsibility for the error, regardless of the circumstances.

Table 5: Medication error statistics from three District Health Boards			
Type of medication error	DHB 1*	DHB 2	DHB 3
Medicine given despite contra-indications		0.27%	
Medication given in wrong amount	11.3%	24.2%	42%
Medicine incorrect	27.3%	14.2%	9%
Adverse reaction to medication noted		1%	5%
Pharmacy related medication issues	0.4%	6.4%	4%
Medicine prescribed incorrectly		4.3%	5%
Medicine given via incorrect route	11.7%	0.27%	
Medication omitted/given at wrong time	26.1%	20.7%	20%
IV therapy timing/dosage/administered incorrectly	16.6%	28.3%	
Wrong patient	5.2%		2%
Allergy related errors	1%		4%

* DHBs are not individually identified to protect anonymity

Nurses and other health care professionals participating in research have discussed how they fear the consequences of reporting a medication error because of the disciplinary and professional ramifications (Vincent 2003; Arndt 1994). Baker (1997) highlights that because of this, nurses frequently embrace their own version of what constitutes a medication error. She reports that nurses engage in a process that seeks to negotiate between institutional policy and the practical constraints that govern everyday practice.

Another issue that affects incident reporting is the format of the forms, many of which are structured in such a way that systems issues are not identified. For this reason researchers and practitioners have suggested changing incident forms to incorporate the identification of systems issues and have proposed anonymous reporting (Bulla 2004; Suresh et al 2004; Anderson and Webster 2001).

These strategies have been documented to increase the likelihood of practitioners reporting errors as well as near-misses (Suresh et al 2004; Vincent 2003). Such approaches to the issue of incident reporting also increase the opportunity to discover the factors that contribute to systems-related errors (Bulla 2004; Lamb 2004; Suresh et al 2004; Vincent 2003; Anderson and Webster 2001; Day et al 1994). Authors such as Baker (1999a) and Lamb (2004) assert that unless reporting mechanisms that focus on a single individual are changed, systems issues will not be addressed, and will remain invisible.

The New Zealand context

A national database describing the prevalence of MAE is not available in New Zealand and little literature has been published about such events (Seddon and Merry, 2002; Webster and Anderson 2002; Anderson and Webster 2001; Healee 1999). It has been reported that the overall incidence of adverse events occurring within the hospital system in New Zealand is 6.3% (Davis et al 2002). However, this study did not specifically target MAE.

Some information about the number of medication errors being reported from within three District Health Boards (DHBs) gives some indication as to the type of errors that occur (see table 5). However, there is considerable variation between the different hospital statistics in relation to the point at which errors occur, suggesting that the systems issues of greatest concern may vary from one hospital to another.

Information about medication errors on a national level is available from the Accident Compensation Corporation (ACC), which administers New Zealand's national accident insurance scheme. ACC's Medical Misadventure Unit assesses individual cases where medical error or medical mishap may have occurred, and provides compensation accordingly. During the period from 1993-2004 ACC has accepted 31 drug error claims (O'Neill 2004), which constitutes 3% of all that have been accepted on the grounds of medical error. Of the 31 drug error claims, 17 (33%), have been attributed to nurses (O'Neill 2004).

Over the past few years the New Zealand Ministry of Health has developed a number of initiatives to help individual DHBs enhance patient safety in relation to sentinel events (Ministry of Health 2001a; Ministry of Health 2001b). The National Health Epidemiology and Quality Assurance Advisory Committee (referred to as EpiQual) was also established following a legal mandate in 2000 to provide assistance to DHBs on issues such as

quality improvement, leadership and advice. Another crucial task referred to EpiQual was the collection of national data to assist with quality improvement within the DHBs.

In late 2003, the drive to develop a system to address national issues related to MA saw the development of the Quality and Safe Use of Medicines initiative in New Zealand. This exciting initiative has the potential to address many of the systems-related issues affecting patient safety. It spans all facets of health care delivery and promotes collaborative and multidisciplinary input into the process. In response, some DHBs have appointed professionals within their organisations to drive the development of Quality and Safe Use of Medicines. One such DHB, Capital and Coast District Health Board, has embraced a multidisciplinary approach, appointing a nurse, a pharmacist and a doctor to address issues to enhance the safe use of medicines.

These initiatives are the first steps toward re-defining how we understand the handling of medications, and it is important that nurses across the country take the initiative and respond by offering their input. However, for nurses to embrace their important role in patient safety, it is imperative they examine their previously-held understandings of nurses' role in the medication process, and move on from that position to positively influence change.

Historical understandings and future directions for nurses

Nurses take responsibility for MA, as well as monitoring the prescribing practices of other professionals. They are the gate-keepers, maintaining active surveillance over the process on a continual basis. This can leave nurses feeling vulnerable, and therefore, their MA practices may be motivated by factors such as fear and professional liability, instead of client safety (Freedman Cook et al 2004; Frankel et al 2003; Day et al 1994). This position within the medication chain may lead to nurses accepting the responsibility for prescribing, dispensing and medication errors they may not have contributed to.

As demonstrated in this analysis of the literature, the biomedical model holds sway over nursing knowledge in relation to MA, shaping nursing practice accordingly. As a consequence, expertise on MA is afforded to those outside the profession (Gibson 2001). However, nurses are key to the process of MA and it makes sense that they take control of the process, instead of listening to other disciplines' musings on what nurses need to do differently. It is important that nurses contribute to nursing knowledge, and thereby extend our professional body of knowledge and expertise.

Nurses work in a multidisciplinary environment, but must question the blanket acceptance of the belief that nurses are incapable of practicing safely without oversight from other disciplines. Nurses need to examine the

historical tendency to step outside their professional domain and expertise to find the answers to MAE from others. Indeed, what right do other professions have to define nursing practice? Nurses can begin addressing this issue from the position of being knowledgeable-practitioners, who have significant expertise in detecting prescribing errors, and celebrate our distinguished history of keeping patients safe despite multiple systems errors.

Nurses can also gain control of their practice discipline by addressing difficult issues that have held them captive to prescribed ways of 'being in the world'. The example of MAE in relation to nursing practice demonstrates that nurses needlessly leave themselves open to critique and censure, because so often they have ignored the fact that the prescribing process is multidisciplinary in nature. Therefore it is important that nurses consciously take up the challenge of addressing important practice issues and energetically contribute to change.

In a landmark study, based in Australia, Baker (1997) spent time talking with nurses about how they understood medication errors. The findings of this study highlight that nurses are continually mindful of delivering optimal and safe patient care. As a result, nurses are constantly having to walk the tight-rope between adherence to policy and delivering responsive client-oriented care. This situational complexity defines the experience of nursing practice in relation to MA. The outcomes of Baker's study stress the importance of talking to nurses about their practice, as these discussions can fuel the development of nursing-focused strategies that will provide meaningful support in relation to MA-related decision making.

Ultimately, there is a need to throw off the culture of 'blame and shame' that has traditionally cloaked the issue of MAE, and has contributed to erroneous perceptions about nurses' ability to deliver safe practice. This will only be achieved if nurses actively drive change within both the clinical and research settings. It is imperative that clinically-based nurses contribute their expertise towards directing practice strategies, as well as driving research that examines the issue of MA. If nurses do not respond to the call to change our professional culture, we will forever be at the mercy of other disciplines' commentaries about our practice.

The Quality and Safe Use of Medicines initiative provides nurses with the opportunity to proactively change the way MAE is understood and dealt with on a national level. Nurses need to participate in initiatives that seek to tap into their expertise on MA, which can be achieved by actively participating in guideline development and contributing to New Zealand-based research. Through this process nurses, can significantly enhance patient safety and promote professional standing.

CONCLUSION

This paper has highlighted that MA is an important part of delivering safe patient care. Despite a desire to

deliver high quality care, errors occur on both a systems and personal level. Nurses have historically taken a back-seat role in initiatives that have sought to address issues related to MA, however nurses have developed significant expertise in MA and have considerable knowledge of associated systems. This knowledge needs to be accessed and utilised within quality initiatives tackling the issue of MA. The Quality and Safe Use of Medicines Group provides New Zealand nurses with an opportunity to contribute to national policies on the safe use of medicines.

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MISMANAGEMENT OF DELERIUM PLACES PATIENTS AT RISK

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ABSTRACT

Objective:

This paper discusses the problem of delirium and the challenges of accurately assessing, preventing and managing patients with delirium in an acute care setting.

Primary Argument:

Acute confusion, also known as delirium, is misdiagnosed and under-treated in up to 94% of older patients in hospitals. With the ageing population, this problem will increase dramatically in the Australian setting. Managing patients with delirium is challenging not only for the management of their basic nursing care needs but also because they are prone to adverse events such as falls and medication problems. In order to address this issue it is vital that health care professionals routinely assess patients for signs of delirium. The current 'gold standard' for assessing delirium is the use of the Confusion Assessment Method (CAM) which has been developed based on the diagnostic criteria set by the Diagnostic and Statistical Manual of Mental Disorders DSM-IV and can be used by non-psychiatrists. Further, increased attention should be given to the prevention and management of delirium and the use of orientation and validation therapy.

Conclusion:

Research indicates that early identification and intervention can help to limit any negative effects or adverse events. Increasing knowledge and awareness of early detection and efficient management of delirium is the first step toward prevention.

INTRODUCTION

Acute confusion, also known as delirium, is misdiagnosed and under-treated in up to 94% of older patients in hospitals, according to international reports (Cole et al 2002a). Australia's fastest growing population is older adults aged 85 and over, whose cognitive decline predisposes them to developing delirious episodes. This issue requires urgent attention as it places enormous strain on families, carers and the health care system. Yet so far, there is no Australian data available on prevalence of delirium in our hospital settings to indicate the severity of the problem. Further, a widely accepted nursing management protocol of delirium is yet to be established.

SEARCH STRATEGY

This discussion was developed based on the literature from EBSCO which provides access to a range of databases as well as Academic Search Premier; MEDLINE; CINAHL; Health Source: Nursing/Academic Edition; Psychology and Behavioural Sciences Collection; PsychINFO; and PsychARTICLES. Key words that were used in these searches were 'delirium' or 'acute confusion', which were combined with the words 'depression', 'dementia', 'management', 'acute care' and 'hospitalised patients'. To ensure evidence was contemporaneous, studies were limited to those that were undertaken from 1990 to 2005.

DISCUSSION

There are a number of risk factors associated with delirium, the most common documented being advanced age (Mentes, Culp, Maas, and Rantz 1999). Other risk factors for delirium include polypharmacy, malnutrition, dehydration, respiratory or urinary infection, dementia, functional or sensory impairment, use of restraints, stroke and sleep deprivation (Inouye et al 2001; O'Keefe 1999;

Samuels and Evers 2002). Each of these factors is an issue commonly experienced by hospitalised patients. As delirium can be instigated by a number of physiological, psychological, sociological and environmental factors, this condition can develop across a number of clinical settings and patient conditions. For example, patients following hip replacement surgery (Segatore and Adams 2001), patients who are terminally ill (Morrison 2003), and those in residential aged care (McCarthy 2003a). The large number of multi-dimensional variables, risk factors and environments that predispose individuals to develop delirium makes the prevention of this condition a difficult task.

Reasons why delirium is misdiagnosed

In many cases delirium is misdiagnosed as being either dementia or depression (Samuels and Evers 2002). Such an assessment error distracts and diverts health care professionals from treating the actual condition of delirium with some serious consequences. This type of misdiagnosis and subsequent treatment of delirium eventually results in increased: length of stay; hospital costs; nursing home placement; and morbidity and mortality rates (Douglas et al 2005).

Furthermore, patients experiencing a delirious episode will often experience hospital-acquired complications such as adverse reactions to medications, falls, infections, urinary incontinence and poor nutrition, which in turn may exacerbate or prolong the delirious episode – these factors may also contribute to the onset of delirium (McCarthy 2003b).

According to the international literature, the complexity of misdiagnosis lies in the fact that the symptoms of delirium, dementia and depression overlap, and all three syndromes have the ability to co-exist as well as in the fact that dementia is one of the most important risk factors for delirium (McCarthy 2003a; Samuels and Evers 2002).

According to the DSM-IV-TR, delirium is a neuropsychiatric syndrome characterised by disturbances in attention and consciousness that are acute in onset and have a fluctuating course (American Psychiatric Association 2001). In addition, delirium is classified into three types according to a patient's level of psychomotor activity: hyperactive, where psychomotor activity is increased and agitation is prominent; hypoactive, where psychomotor activity is decreased; and mixed, where features of both hyperactivity and hypoactivity are present. These differing symptoms of delirium add to the complexity in diagnosis.

For example, hyperactive delirium can be misdiagnosed as an anxiety state whereas hypoactive delirium may be misdiagnosed as depression or may even be left undetected. This problem is exacerbated by the prevailing conditions in acute care settings where the pre-admission status of the patient is not clearly known or understood by health professionals at the time of admission. For example, when the situation does not allow for an 'acute onset' to be determined, some patients who present as confused may be assessed to be displaying their normal behaviour.

Due to their dysfunctional cognitive status patients experiencing a delirious episode are unable to think clearly and often perceive their environment as being hostile or threatening. Increased psychomotor activity in hyperactive delirious patients may provoke them to abscond from this type of setting. It also means they are at increased risk of self-harm because they may dislodge critical life support and monitoring equipment.

Patients experiencing delirium have also been known to assault staff and visitors (Foreman, Wakefield, Culp, and Milisen 2001). This situation puts nurses, patients and visitors at risk and places an unnecessary burden on the health care system. This type of behaviour necessitates increased patient surveillance by nurses, and has been found to result in more frequent use of physical and chemical restraint, extended hospital stay and both increased and unexpected health care costs (Foreman, Mion, Tryostad and Fletcher 1999).

The majority of research papers on delirium have been based on studies conducted in Canada, the United States of America and the United Kingdom. Comparable to Australian hospitals, patient populations in these countries are also largely weighted towards older patients (>65 years). Overseas data have indicated that delirium occurs in about 15-22% of all general admissions to hospital and that another 10-30% of patients become delirious post-admission (O'Keefe 1999; Schofield 2002). Furthermore, over the past 5-10 years USA based statistics have identified a notable increase in the incidence of delirium for hospitalised patients from age 80 and above (Inouye, Foreman, Mion, Katz and Cooney 2001).

Statistics gathered in the USA indicate each confused patient costs an average of US$30,000 (Foreman, et al 1999). Unfortunately, no current costings are available on patients within an Australian setting. A study by Inouye, Schlesinger and Lydon (1999b) predicted that in the USA each year, delirium complicates hospital stays for more than 1.5 million inpatient days and accounts for more than US$4 billion of Medicare expenditures. The increased costs associated with delirium occur due to increased morbidity, increased nursing care needs, admission to residential care and re-admissions to acute care hospitals (Coulson and Almeida 2002; Franco, Litaker, Locala and Bronson 2001).

While there are no systematic methods for treating delirium, investigators have suggested that early detection is the first step toward developing treatment strategies and managing this condition (Coulson and Almeida 2002; Laplante and Cole 2001; Wakefield 2002). Early recognition and management can effectively restore an older person to premorbid health and functioning (Segatore and Adams, 2001). Regular systematic

screening of mental status in the acute hospital setting can ensure that cases of delirium are recognised and treated before they have a deleterious effect on the patient. Nurses at the bedside have the most extended contact with patients. As such, nurses are often the first to recognise subtle behavioural and cognitive changes in patients which, through systematic screening, best positions them for prompt detection of the condition.

Physicians who typically see patients for only brief periods tend to rely heavily on nursing observations for mental status changes. Even so, overseas studies investigating delirium have concluded that neither physicians nor nurses have been proactive or accurate in screening for delirium in at-risk patients (Inouye 2001; Lacko, Bryan, Dellasega and Salerno 1999). Similar outcomes were also found by an Australia-based study conducted by Nair, O'Dea, Lim and Thakkinstian (2000) which identified that health professionals do not routinely assess for cognitive decline in hospitalised patients as their main concern is the management of the patient's primary medical problem.

The assessment and management of delirium

In order to address this issue it is vital that health care professionals routinely assess patients for signs of delirium. The current 'gold standard' for assessing delirium is the diagnostic criteria set by DSM-IV (Cacchione 2002; Laurilla, Pitkala, Strandberg and Tilvis 2002), which was devised for use by psychiatrists and remains 'the most inclusive criteria (for delirium) to date' (Cole, Dendukuri, McCusker and Han 2003, p.200). At present, there are just a handful of instruments that assess delirium such as: the Delirium Rating Scale (Trzepacz, Baker and Greenhouse 1988); the Delirium Index (McCuster, Cole, Bellavance and Primeau 1998); the Informant Questionnaire on Cognitive Decline in the Elderly (Jorm 1994); and the NEECHAM Confusion Scale (Neelson, Champagne, Carlson, and Funk 1996).

Most of these instruments are problematic in that they do not assess all the key features of delirium, have relatively low sensitivity and/or specificity; and require information from many different sources that can only be interpreted by a skilled clinician (Lapante and Cole 2001; Rapp et al 2000). There is, however, one assessment tool that, in terms of its psychometric properties, consistently out-performs all others: the Confusion Assessment Method (CAM) (Inouye, van Dyck, Alessi, Balkin, Siegal and Horwitz 1990).

A study by Smith, Breitbart and Meredith (1995) identified that combinations of other validated instruments measuring delirium do not yield substantial improvements in performance over the CAM. Further to this, the CAM has been compared with other instruments by external reviewers and found to have the best combination of ease, speed of use, data acquisition, reliability and validity (Smith et al 1995). Because of its ease of use the CAM is currently the most widely used instrument for detection of delirium worldwide (Inouye 2001).

Originating from operationalised criteria set by DSM-IV, the CAM was devised by an expert panel using a consensus-building process (Inouye et al 1990). Inouye and colleagues developed the CAM to improve the assessment of delirium by non-psychiatrists. Greater awareness of such a reliable, expeditious and easy-to-use systematic screening tool in Australian populations at risk could increase the rate of early detection and lead to the appropriate management of delirious patients that could potentially reduce patient-stay costs.

To manage delirium, the literature highlights the use of environmental or psychosocial methods. Over the past few years two such interventions; re-orientation therapy and validation therapy, have been used by nurses for the treatment of delirium (Milisen, Steeman and Foreman, 2004). Currently there is no standard formula/protocol used in the implementation of either of these therapies and it appears these interventions have been applied in a number of ways across settings (Cole, et al 2002b; Fagerberg and Jonhagen 2002; Schofield and Dewing 2001; Wakefield 2002). These variations in practice may be explained by the relative flexibility of both interventions, dependent upon the severity of delirium in patient populations and the context of practice.

Re-orientation therapy

Re-orientation therapy uses environmental support measures that are designed to re-orient the patient to the *here and now*, thus minimising factors that contribute to patient confusion. These measures include: displaying time-orienting devices such as a clock or calendar; frequently addressing the patient by name; conveying identifying information by stating their purpose, eg. 'Mr Smith, I am your nurse and I am now going to...'; using frequent verbal reminders of time, day and place; providing the patient with glasses and hearing aids as needed; dimming the lighting; minimising noise both during the day and at night to promote uninterrupted sleep ie. using volume control on equipment and minimising conversation among staff at the bedside; using effective communication ie. slow-paced, concise and repetitive language; avoiding terminology unfamiliar to the patient; displaying family photos or familiar possessions from home; encouragement of family visits; and ensuring adequate pain relief. In creating the best environment for the older person, re-orientation therapy enables the patient to restore a sense of control through supportive measures that help in relieving physical discomfort and promote mental activity. There is now good evidence that re-orientation therapy can prevent delirium in high-risk patients (Inouye 2000; Inouye et al 1999a).

Validation therapy

Validation therapy involves nurses' acknowledgement that patients' feelings are real to them. The key to administering this type of therapy is for nurses to listen to

what their patients are trying to tell them, to trust their stories, even though they might seem fanciful, and to interact with them in a way that maintains their dignity and integrity. In doing so nurses are meeting patients' interpersonal and psychological needs with sensitivity through confirmation, reassurance and support of patient narratives during their delirious episode. In this regard validation therapy has been found to be an effective approach in meeting confused, aggressive older persons (Fagerberg and Jonhagen 2002).

Validation therapy is literally about 'validating' an experience as real, without confirming that it exists in the real world. Therefore, rather than re-orienting the patient to the here and now, as with re-orientation therapy, validation therapy emphasises supporting and endorsing the patient's current confusional experience. Findings presented in a study conducted by Andersson, Hallberg, Norberg and Edberg (2002) indicated a person's confusion may actually involve their experience as a mixture of events going on in their vicinity, their previous experiences and/or current life situation transferred into a 'new story'. Nursing staff should not scold the patient or make humorous remarks which may cause the patient to feel embarrassed or perceive that something disgraceful has taken place. Otherwise there is a risk that such threatening experiences will increase their suffering. When it appears that patients might harm themselves or others, and when non-pharmacological methods have failed, then chemical and/or physical restraint may be necessary.

Both of these therapies, even though they are to some extent conflicting, make a valuable contribution to prevention and treatment of delirious episodes within the acute care setting (Millisen et al 2004). These interventions also promote restraint-free care, thus reducing the likelihood of increased patient agitation.

Research, which implemented a large controlled clinical trial of standardised protocols for the management of risk factors for delirium, found that primary prevention strategies, principally re-orientation therapy, were the most effective and that these strategies should be implemented by nurses with patients at risk of delirium (Inouye et al 1999). This finding supports the conclusions of Stromberg (1995) and Schofield (1997) that re-orientation is the best way to aid patients experiencing delirium. However, Fagerber and Jonhagen (2002) found when nursing staff tried to reorient patients experiencing a delirious episode, attempting to guide them back to reality, the patients experienced this as mistrust of their experiences which then led to undue stress and further delirium. By the same token, Meredith (1998) suggested that validation therapy is the most effective approach when dealing with confused, aggressive, older patients. What this denotes is that, although findings from previous studies are informative, a widely accepted management protocol of delirium is yet to be established.

CONCLUSION

The challenge ahead is to find the right combination of both therapies to form an easy-to-administer social intervention. The development of such an intervention could then be applied across the continuum of care to be used by nurses in the acute care setting through to staff in residential care and carers in the community. Australia's ageing population calls for, if not demands, cost-effective and competent care which meets the unique needs of older people. The increasing lifespan of older Australian adults predisposes them to cognitive decline which predisposes them to developing delirious episodes. This places an enormous strain on families, carers and the health care system. Research indicates early identification and intervention can help to limit these negative effects. Increasing knowledge and awareness of early detection and efficient management of delirium is the first step toward prevention.

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BEYOND THE RHETORIC: WHAT DO WE MEAN BY A 'MODEL OF CARE'?

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ABSTRACT

Background:

Contemporary health care systems are constantly challenged to revise traditional methods of health care delivery. These challenges are multifaceted and stem from: (1) novel pharmacological and non-pharmacological treatments; (2) changes in consumer demands and expectations; (3) fiscal and resource constraints; (4) changes in societal demographics in particular the ageing of society; (5) an increasing burden of chronic disease; (6) documentation of limitations in traditional health care delivery; (7) increased emphasis on transparency, accountability, evidence-based practice (EBP) and clinical governance structures; and (8) the increasing cultural diversity of the community. These challenges provoke discussion of potential alternative models of care, with scant reference to defining what constitutes a model of care.

Aim:

This paper aims to define what is meant by the term 'model of care' and document the pragmatic systems and processes necessary to develop, plan, implement and evaluate novel models of care delivery.

Methods:

Searches of electronic databases, the reference lists of published materials, policy documents and the Internet were conducted using key words including 'model*', 'framework*', 'models, theoretical' and 'nursing models, theoretical'. The collated material was then analysed and synthesised into this review.

Results:

This review determined that in addition to key conceptual and theoretical perspectives, quality improvement theory (eg. collaborative methodology), project management methods and change management theory inform both pragmatic and conceptual elements of a model of care. Crucial elements in changing health care delivery through the development of innovative models of care include the planning, development, implementation, evaluation and assessment of the sustainability of the new model.

Conclusion:

Regardless of whether change in health care delivery is attempted on a micro basis (eg. ward level) or macro basis (eg. national or state system) in order to achieve sustainable, effective and efficient changes a well-planned, systematic process is essential.

BACKGROUND

Contemporary health care systems are challenged to provide quality care as a consequence of fiscal constraints (Duffield, Donoghue, and Pelletier 1996); the changing expectations of consumers and health professionals (Edwards, Courtney, and Spencer 2003); a greater emphasis on quality and transparency changes in treatment patterns (Blendon et al 2002); the ageing of the population and the increasing burden of chronic disease (Williams and Botti 2002). Existing models of care are often historically based and subsequently not responsive to the changing needs of contemporary health systems.

In response to perceived inadequacies in contemporary health care delivery, health professionals have been prompted to develop novel models of care. For example, the increasing burden of heart failure has inspired research informing innovative models of care, including nurse-led post-discharge programs and rehabilitation incorporating lifestyle interventions. This research has largely evaluated the effectiveness of modifications of care based on acute, episodic care to better meet the needs of those with chronic disease (Grady et al 2000; McAlister et al 2001; McAlister et al 2004; Tsai, Sally, and Keeler). Unfortunately, many of these valuable lessons are broadly available to Australians (Clarke et al 2004).

Optimally, model of care development should be multifaceted and multidisciplinary, incorporating the best available evidence from patient-centered research with the needs and preferences of individuals, communities, health professionals, policy makers, funding agencies, professional organisations and underpinned by sound theoretical and conceptual principles (Sackett et al 2000; Wagner et al 2001; Cretin, Shortell, and Keeler 2004). Regardless of theoretical perspectives informing models of care development (Kikuchi 2004), it must be emphasised that the delivery of nursing care occurs in complex and dynamic settings which are responsive to social, political, economic and clinical factors (Davidson et al 2003).

Significantly, the development of models of care is often an iterative process and consequently does not have finite commencement and completion dates. Whilst such flexibility is an advantage of this approach, it creates challenges for the utilisation of traditional evaluation techniques such as randomised controlled trials. Methods of evaluation such as pre-test – post-test design and case study designs lend themselves more readily to the measurement of outcomes to assess the effectiveness of

changing models of care (Ovretveit and Gustafson 2002). The substantial improvements in individual patient and organisational outcomes, which can be attained by adapting models of care, fuels the development of this methodology in contemporary health care in spite of the methodological challenges inherent in its evaluation (Ovretveit and Gustafson 2002).

Often model of care development involves the intersection of research and implementation of findings in a usual care environment. Establishment of new models of care often involves the development of skills, systems, processes and resources to close the gap between research evidence and clinical practice (Bero et al 1998). An example of this is the New South Wales (NSW) Chronic Care Program through which 60 Priority Health Care Programs have been established (New South Wales Health 2003). These programs focus primarily upon the priority target areas of respiratory disease, cardiovascular disease and cancer. The programs have been establishing a range of innovative programs, informed by the best available evidence to achieve a more integrated, coordinated and patient-focused approach for people with chronic illness in New South Wales (New South Wales Health 2003, 2001).

Agendas of health reform have increased the dialogue and debate concerning model of care development and evaluation. The following comments of Wimpenny (2002) caution us to avoid a rhetorical perspective of the term 'models' and to systematically define what we mean when we use this term.

'Since the mid 1970s considerable writing and discussion has occurred about models of nursing. In the 21st century the impact and relevance of nursing models to the practicing nurse is characterized by divergent and often ambivalent views. The almost evangelical adoption of a model of nursing in the 1970s to 1990s has changed and made way for a more critical and skeptical view of their purpose and value. Many nurses in clinical practice, education and research may view this as wholly appropriate as the uncritical acceptance of these 'early' years resulted in decisions and usage of models, which have had a lasting legacy' (Wimpenny 2002, p 346).
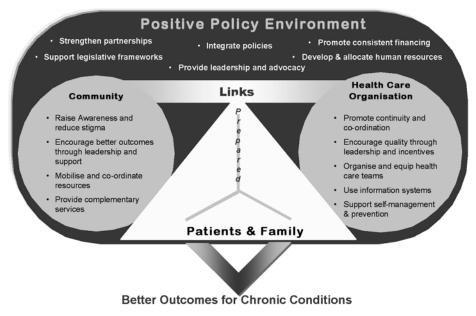
What do we mean by a model of care?

Ambiguity exists in the literature, with the terms model of care, nursing model, philosophy, paradigm, framework and theory often used interchangeably, despite referring to diverse, yet parallel concepts (Tierney 1998). In their recent review of the literature, the Queensland Government (Australia) reported that they found no consistent definition of 'model of care' (Queensland Health 2000). They concluded that a model of care is a multi-dimensional concept that defines the way in which health care services are delivered (Queensland Health 2000).

More specifically, Davidson and Elliott (2001) described a model of care as a conceptual tool that is 'a standard or example for imitation or comparison, combining concepts, belief and intent that are related in

Figure 1. World Health Organisation Chronic Care Framework

Innovative care for chronic conditions frame

Building Blocks for Action Innovative Care for Chronic Conditions: Global Report. World Health Organisation 2002.

some way' (p. 121). They consider it to be critical that models of care should:

- be evidence based and/or grounded in theoretical propositions;

- be based upon assessment of patient and health provider needs;

- incorporate evaluation of health-related and intervention outcomes;

- be inclusive of consultation with key stakeholders;

- be considerate of the safety and wellbeing of nurses;

- involve a multidisciplinary approach where applicable;

- consider the optimal and equitable utilisation of health care resources;

- optimise equity of access for all members of society; and

- include interventions that are culturally sensitive and appropriate (Davidson and Elliott 2001, p. 123).

In order to decrease ambiguity it is useful to not only define what we mean by a 'model' but also to distinguish between a 'nursing model', a 'model of care', and a 'framework'. A model has been defined as, 'a descriptive picture of practice which adequately represents the real thing' (Pearson and Vaughan 1986, p.2). That is, an idea that can be explained by using symbolic and physical visualisation. It can also be used to facilitate thinking

about abstract concepts and the relationships between them (Marriner 1986).

A 'nursing model' pertains solely to the practice domain of nursing, whereas a 'model of care' describes the delivery of health care within the broader context of the health system. In relation to this understanding of a model of care, the framework shapes and guides the implementation and evaluation phases of the models' development'. Using a building analogy, the 'framework' is the brace and girders that support the model.

With these concepts in mind, a model of care is an overarching design for the provision of a particular type of health care service that is shaped by a theoretical basis, EBP and defined standards. It consists of defined core elements and principles and has a framework that provides the structure for the implementation and subsequent evaluation of care. Having a clearly defined and articulated model of care will help to ensure that all health professionals are all actually 'viewing the same picture', working toward a common set of goals and, most importantly, are able to evaluate performance on an agreed basis.

As illustrated in Figure 1, the World Health Organisation (WHO) Chronic Care Framework (World Health Organisation 2002) positive policy environments and links between the community and health care organisations are critical factors to support chronic care delivery models.

National Health Service Framework, United Kingdom

The rolling program of National Service Frameworks (NSFs) in the UK commenced in April 1998 (UK Department of Health 2003). The aims of these frameworks are to: establish national standards and identify key interventions for defined services or care groups; apply strategies to support implementation of models of care; establish mechanisms to ensure advancement toward agreed aims within a pre-specified time-scale; and form one of a range of strategies to improve quality and decrease variations in service provision (UK Department of Health 2003). To date, NHS frameworks cover: cancer (September 2000); pediatric intensive care; mental health (September 1999); coronary heart disease (March 2000); older people (March 2001); diabetes (Standards December 2001, Delivery Strategy January 2003); and the first part of the Children's NSF (April 2003)(UK Department of Health 2003). Each NSF is developed in conjunction with an external reference group which brings together key stakeholders, including health professionals, consumers and carers, health service managers, partner agencies, and other advocates (UK Department of Health 2003).

Clinical Service Frameworks, New South Wales (NSW) Australia

The NSW Clinical Service Frameworks have emerged from the Chronic Care Program to optimise health care delivery. This program was established under the NSW Government's Action Plan for Health in order to address the challenges presented by the increasing prevalence of chronic and complex diseases. The three health areas of respiratory disease, cancer and cardiovascular disease (and its associated risk factors, including diabetes) were identified as being of priority. These frameworks are designed to foster implementation of best practice within a structure of clinical governance (New South Wales Health 2003).

National Palliative Care Framework, Australia

The National Palliative Care Strategy provides a guide for the development and implementation of palliative care policies, strategies and services to improve the quality, range and coverage of palliative care services in Australia (Commonwealth Department of Health and Aged Care 2000). This has informed the NSW Palliative Care Framework which provides a basis for the planning of local service delivery that will promote access, continuity of care and standard levels of care regardless of the location in which the service is provided (NSW Health Department 2001).

AIM

Informed by the conceptual principles above, which define what is meant by the term model of care, the purpose of this discussion paper is to identify and discuss the key processes necessary to develop models of care to achieve desired outcomes.

METHOD

CINAHL, PubMed and MEDLINE electronic databases were searched to identify relevant literature published in the English language. Keywords used in this search included: 'model*', 'framework*', 'models, theoretical' and 'nursing models, theoretical'. Reference lists of retrieved articles were searched for additional literature. Relevant journals held locally were hand searched for pertinent articles and the Internet was searched using the Google search engine for related organisations or electronic documents using the keywords listed previously. These searches were not confined to health related literature, as many paradigms were found to describe key elements of model development pertinent to this enquiry.

The eclectic and heterogenous material for this review precluded the use of a formal systematic review methodology. Further, the aim of this article is not to undertake a discourse of nursing theories, but moreover, articulate pragmatic and achievable principles to undertake a reflective and iterative review of nursing practice and determine appropriate strategies to implement innovative and appropriate care, once a philosophical or conceptual path is identified (Morse 1995; Harvey et al 2002).

RESULTS

The literature revealed several key perspectives informing pragmatic elements of model of care development. These are: (1) EBP movement (Foxcroft and Cole 2003); (2) quality improvement and collaborative methodology (Berwick, James, and Coye 2003); (3) change management theory (Carney 2002, 2000); (4) project management methodology (Loo 2003; O'Kelly and Maxwell 2001); (5) disease management literature (Glasgow et al 2002); (6) theoretical perspectives that dictate critical elements of model of care development such as the health promotion model and self-care theories (Jaarsma et al 1998; Jaarsma et al 2000); and, (7) consumer participation and identification of needs, which is increasingly recognised as a critical factor (Edwards, Courtney, and Spencer 2003; Johnson, Leeder and Lewis 2001; Wellard et al 2003). These key elements are briefly discussed below.

Evidence-based practice

Evidence-based practice (EBP) is based upon demonstration of improvement in patient outcomes when the best available evidence is used to guide clinical practice (Leape, Berwick, and Bates 2002; French 2000). The EBP movement is motivated by a desire to ensure individuals receive those treatments proven through systematic enquiry to be most effective, after

consideration of their unique values and beliefs and the expert clinical assessment of clinicians (Sackett et al. 2000). Research evidence about clinical problems is evaluated according to rigid 'levels of evidence'. Within such appraisal significantly more weight is afforded to evaluation methods such as randomised control trials, with less value placed upon qualitative evaluation or case-study approaches (National Health and Medical Research Council 1999).

Following systematic identification and assessment of the quality of available evidence, synthesis of findings can be undertaken and guidelines formulated to guide clinicians in their decision-making. The principles of EBP are generic and can be utilised to improve the standards in all aspects of health care. There is some contention, however, as to how much of nursing science and scholarship is valued within traditional positivistic domains (Rycroft-Malone et al 2004).

Quality improvement

Model of care development and evaluation is entrenched in a desire to improve patient and organisational outcomes. Thus, it can be seen to be informed by quality improvement (QI) principles. Ovreteit and Gustafson (2002) describe quality programs as planned activities performed by an organisation or health system to improve the quality of health care.

Health professionals are continually evaluating models of care in their search for more efficient service delivery and improved patient outcomes (Stutts 2001). Ovreteit and Gustafson (2002), suggest there is some doubt about the impact of QI programs, as there is little independent and systematic research about the effectiveness or the conditions required for effective QI programs. However, they believe this could be improved by: assessing the level of the intervention; validating measures of assessing implementation; considering wider outcome assessment; conducting longitudinal studies; consideration of economic implications; and utilising a theory or model that explains how the intervention caused the outcomes (Ovretveit and Gustafson 2002). The QI principles when applied to model development assist in shaping the model to achieve desired outcomes and assist with an iterative process of evaluation.

Health promotion model

The health promotion model certainly lends itself appropriately to health care systems wishing to create consumer engagement and participation and the promotion of healthy communities. Health promotion is the process of enabling people to increase control over the determinants of health and thereby improve their health and wellbeing. As such, the health promotion model has informed many population-based approaches of model of care development.

To reach a state of complete physical, mental and social wellbeing an individual or group must be able to identify and realise aspirations, to satisfy needs and to change or cope with their environment (Nutbeam 1986). Health promotion involves the entire population in the context of their daily lives, rather than focusing on individuals at risk for specific diseases, and is directed toward taking action on either the determinants or causes of health (Nutbeam 1986). Achieving this requires an optimal mix of responsibility from all involved: individuals; families; communities; a wide variety of professionals (teachers, urban planners, health professionals); and government and non-government sectors. As health promotion draws from a range of disciplines, including: epidemiology; social, behavioural and educational sciences; and management, the use of a model provides direction and focus, as the concepts and theories from these disciplines are synthesised to produce strategies to improve health outcomes (Green and Kreuter 1991).

Some of the core elements of health promotion models concern: accessibility to health care; evaluation of health care; perceptions of symptoms; threat of disease; social network characteristics; knowledge about disease; demographic characteristics; and behaviour change (Egger, Spark, and Lawson 1990). Health promotion has much to offer clinicians seeking to develop models of care that have behaviour change and self management as underlying tenets, as these are core elements of many health promotion models (Lorig et al 1999; Lorig 2002).

Disease management

Disease management is an evolving concept that proposes to improve health outcomes by using a systematic approach to provide patient-centred, comprehensive and integrated care across the health system (Jordan 1999). The development of this model of health care delivery has stemmed from the well-recognised combination of an ageing population, increasing numbers of the chronically ill and finite health resources (Wagner 2001). Whilst several common diseases have been reported as being amenable to disease management strategies (eg. asthma, heart failure, diabetes, depression, hypertension), there are several generic program components.

Jordan (1999) describes the four basic components as: (1) identification of evidence-based practice for the specific disease; (2) development of a clear plan to drive clinical decision making; (3) delivery of best practice across multiple care providers and sites of care; and (4) measurement of quality indicators to measure clinical and economic outcomes. Riegel and LePetri (2001) explain that disease management programs are 'comprehensive, integrated, and aimed at improving the quality of care provided to populations of patients rather than individuals' (p. 267).

Project management

Project management approaches, albeit not a theoretical perspective, provide useful tools for nurses to

Table 1: Key stages in model of care development	
Stage	**Key task**
Planning (The set-up phase involving the identification of key issues, literature review and stakeholder identification)	• Scoping the problems and issues • Establishing baseline data and summarise the current model of care • Examine what has worked well in other settings • Improvement begins with setting aims because an organization will not improve without a defined path • Identify factors to optimise sustainability eg. using funding mechanisms, key stakeholder involvement, promote and develop clinical leaders etc • Start to define the new model, including goals and objectives
Development (Progression of the pre-specified plan in the clinical setting)	• Streamlining and standardising the process • Development of data management systems • Development of key performance indicators • Measures need to be identified to indicate whether a change that is made actually leads to an improvement • Skill development • Pilot testing of model
Implementation (Execution of the intervention plan)	• Support of clinical staff • Communication strategy • Leadership • Negotiation • Re-orientation of health care services and/or providers
Evaluation (Assessing the efficiency and effectiveness of the intervention plan)	• Measuring performance against pre-specified indicators • Evaluation of serendipitous findings • Evaluation of the impact of change processes on individuals and systems

appraise the feasibility and implement novel care models. The term project management emerged in the 1950s-60s and is defined as the application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of the particular project (Project Management Institute 2004).

Project management is comprised of five processes: initiating, planning, executing, controlling and closing, as well as having nine knowledge areas (Project Management Institute 2004). These nine areas centre on project management expertise in integration, scope, time, cost, quality, human resources, communications, risk management and procurement management (Project Management Institute 2004). These processes relate to health by offering systematic approaches which allow the project management model to be used to assist managers and staff to accomplish projects successfully, deal efficiently with work load stress, improve learning, and expand essential management skills that will assist employees during their professional life. Organisational benefits accumulate with projects and other activities being completed within budgets, time limits, and expected quality standards (Loo 2003).

Change management theory and collaborative methodology

In the United States of America, the Institute for Healthcare Improvement has developed a series of projects based on a collaborative model informed by change management theory to achieve improvement in health care service delivery and outcomes (Flamm, Berwick, and Kabcenell 1998). Key elements of this collaborative model involve the cyclical process of setting aims, establishing measures, developing informed changes to practice, and evaluating the impact of these changes. The testing of changes requires a team to plan, do, study, and act (the 'PDSA cycle'). Repeated PDSA cycles inform insight into clinical systems to facilitate clinical improvement (Lynn et al 2002).

Key stages in model of care development

Crucial elements in changing models of health care delivery are planning, development, implementation, evaluation and sustaining the change (Table 1). Consideration of the evaluation process is critical in ensuring that initial goals have been met and due to the iterative nature of model of care development is critical in determining evolution of the model and in particular issues related to sustainability.

Steps	Questions	Prompts
Table 2: Model of care evaluability assessment tool adapted from: (Hawe, Degeling, and Hall 1990)		
1	Is there a clearly defined model of care?	• Are interventions and strategies informed by baseline data and evidence of need for practice change? • Can the model of care can be readily described?
2	Are there specific goals and expected outcomes attributed to the model of care?	• Are interventions accessible for the target group and aspects of diversity and marginalisation considered? • Are the interventions based upon best available patient-centered research findings? • Is the welfare of all team members considered including health care professionals and patients? • Has there been an attempt to implement strategies such as promotion of clinical leadership and change management strategies to enhance sustainability?
3	Have the primary users of the information derived from the evaluation, and their needs, been clearly identified?	• Is the model designed to produce outcomes that reflect accountability to consumers and governance structures? • Does the evaluation framework meet the needs of funding bodies, consumers and health care professionals?
4	Are the casual assumptions/ theories in the model of care plausible?	• Is the model grounded in theoretical propositions? • Are the philosophical aims and conceptual frameworks reflected in interventions and care plans (eg. patient-centred philosophy is reconciled with interventions and outcome measurements)?
5	Is there agreement on measurable and testable key performance indicators?	• Are the performance indicators and criteria clear and transparent? • Do the performance indicators reflect process and outcome measures?
6	Is there agreement on what data items are necessary in the evaluation plan?	• Do data elements in the evaluation (quantitative and qualitative) reflect the data items in the evaluation plan? • Do the data items describe measurable concepts?
7	Is the model of care implemented as planned?	• Is clinical practice improvement and model development fuelled by reflective practice and outcome measurement? • Has a governance structure been adopted to monitor the implementation plan?

Models of care are often developed to bridge service delivery gaps rather than as a planned strategic response to an identified local need (Eaton 2000). These models of care are often being implemented by health care providers with limited resources in the interests of enhancing care. As has been previously mentioned the application of traditional research methods to measure the outcome of models of care may not always be feasible.

The use of an 'evaluability' assessment process has been promoted in health promotion as a way of ensuring that the critical preconditions for evaluation are actually in place before evaluation occurs (Hawe, Degeling, and Hall 1990). Modification of this 'evaluability' assessment process has been used to guide the development of a format to assist clinicians to ensure that a specific model of care is amenable to evaluation, as detailed in Table 2.

CONCLUSIONS AND KEY RECOMMENDATIONS

The increased focus on the provision of seamless, coordinated care – particularly for the frail and those with chronic and complex needs – and emphasis for safe, efficient and quality care (Heath 2002; Leveille et al 1998; Wagner et al 2001; Wagner 1998) will likely continue to fuel the model of care development agenda. It is important that as far as possible the development of models of care be considered and undertaken systematically rather than being reactionary and rhetorical. This considered and systematised process should not only optimise health related outcomes but also facilitate the potential to sustain improved health outcomes by novel models of care development.

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