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AUSTRALIAN JOURNAL OF ADVANCED NURSING REVIEW PANEL: INTERNATIONAL

Doctoral theses in nursing and midwifery: challenging their contribution to nursing scholarship and the profession

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KEY WORDS

research dissemination, nurse education, research in practice

ABSTRACT

Objective
To determine the impact and outputs of research conducted as part of doctoral studies in nursing.

Design
An online survey was conducted with 27 nursing doctoral graduates from United Kingdom and Australia who had graduated between 2001 and 2012. Textual and numerical data were collected and sorted on outcomes of research for management, education, practice and workforce. Numerical data were collected from journal article outputs regarding impact factors and citation rates; as well as demographic information on graduates. Frequencies were tallied, percentages calculated for both textual and numerical data and tables and figures formulated.

Setting
University and health sector.

Subjects
Doctoral nursing graduates who graduated between 2001 and 2012 from universities in Australia and the United Kingdom were recruited to complete the online survey.

Main outcome measure
The outcomes and outputs of doctoral research are usually implied in the theses but assessment of these is often not apparent in the literature or clinical area. There is little evidence to demonstrate whether or not the nursing profession is influenced by the outcomes of and outputs from nurses' doctoral studies.

Results
The top three topic areas covered by their theses were paediatrics, acute care and the role of nurses in practice. The key outputs from the 21 doctoral studies were 86 publications. Articles from the individual theses had verified citations ranging from 0 to 75. Outcomes from the research were evident in contributions to policy development, models of care, workplace issues at universities, and nursing curricula.

Conclusion
The study shows the need for nursing research at the doctoral level should be directed towards professional needs which ultimately impact on patient care.

INTRODUCTION

A doctorate is said to prepare future leaders of the discipline, "who will creatively generate new knowledge, critically conserve valuable and useful ideas and responsibly transform those understandings through writing, teaching and applications" (Golde and Walker 2006, pp.5). While doctorates are usually research-based degrees and common in nursing faculties (Carlson 2003) questions arise as to whether they are preparing graduates to have an impact on nursing practice. In 2011 only 1% of nurses in the United States of America (USA) had a doctoral degree (Nickitas and Feeg 2011). The most recent published data from the United Kingdom (UK) in 2005 indicated there were only 900 nurses registered in nursing/midwifery PhD programs (Moule and Goodman 2009). While statistics available in Australia suggest an increase in doctorates in the health field from 11.7% (3,884) in 2001 to 15.2% (5,796) in 2009, no comparable data are available in nursing although the statistics suggest 39.5% of female doctorates were in health (Dobson 2012).

The outcomes and outputs of doctoral research is usually implied in doctoral theses but assessment of these is often not apparent in the literature or clinical area. This paper reports on a study conducted with graduates of doctoral programs (traditional PhD, PhD by publication and professional doctorate') in UK and Australia.

Background

In most western countries including Australia, UK, USA and Canada advanced practice nurses are usually required to have Masters degrees (Watson et al 2011; Brar et al 2010; O'Baugh et al 2007). With the emergence of nurse practitioners in a number of clinical areas it is debated whether these nurses should be educated within Doctorate of Nursing Practice programs which have an emphasis on the translation of research into practice, rather than the actual conduct of research (Brar et al 2010; Edwardson 2010; Chase and Pruitt 2006; Meleis and Dracup 2005). In both the UK and Australia the growth of doctoral education has risen significantly in the last decade.

More than 15 years ago, Antrobus and Kitson (1999) argued that there was a need for doctoral graduates in clinical positions, but today there is still confusion as to how valuable it is to the individual nurse and society. Universities clearly value doctorates as a source of income and many graduates go back to academia, teach students and conduct research. However, Watson et al (2011) speculate that this only indirectly benefits nursing practice and society. Borbasi and Emden (2001) note that completing a doctorate in nursing does not necessarily prepare nurses to be better clinicians or managers and they found that most nurses undertake higher degrees to fulfil personal goals. Writing in the late 1990s, Atkin (1999) and Clark (1996) argued that doctoral graduates were unlikely to find employment in nursing as the industry viewed them negatively. However, more contemporary work by Wilkes and Mohan (2008) explored the application and relevance of a doctorate to nurses working in clinical practice in Australia, and found some participants felt their studies had contributed to practice, education and policy development.

In an Australian study conducted in the state of Victoria, Happell et al (2008) surveyed the scholarship of doctoral students in mental health nursing. With a small sample of 16 graduates they found that while nursing and mental health practice were the most common subjects of research, however there was considerable variation in the topics of inquiry and the extent to which the research had been disseminated. The number of publications for individuals ranged from 1 to 119 in the period 1995 to 2005. It was not specified whether these publications were outcomes related to doctoral theses. Happell et al (2008) noted most nurse scholars tend to pursue an academic career path. However, there are an increasing number of doctorally-prepared nurses working in clinical practice, although it is uncertain whether they are able to effectively utilise the skills and knowledge they have gained within their doctoral studies or whether they are pursuing clinical research careers (Wilkes and Mohan, 2008). Within academia, the value of a doctorate lies in it being a

basic requirement for an academic career (Happell et al 2008). Jackson et al (2011) reinforce the view that while doctorate educated nurses are essential in the academic area to pursue research, scholarly activities, and a component of teaching future nurses, this may be indicative of the university's need to demonstrate increased research performance rather than meeting the needs of the students or the outside community.

For a doctorate degree to be effectively utilised in nursing practice and thus have a social impact on health, the research recommendations have to be considered and, where appropriate, implemented. Knowledge translation has been described as 'the exchange, synthesis and ethically sound application of knowledge... within a complex system of interactions among researchers and users... to accelerate the capture of the benefits of research' (Canadian Institute of Health Research 2012, pp.1). This suggests the field of knowledge translation has the potential to improve health and healthcare by providing direction to efficiently facilitate the uptake of research findings and other forms of knowledge.

There exists an overall agreement in the nursing discipline that nurses educated to the doctoral level will enhance the health of people through discovery and dissemination of new knowledge (Kim et al 2006). However, there is a global need for international research to be conducted into the value of doctoral education in nursing and for this to be evaluated across the spectrum of contribution to research, education and practice (Watson et al 2011). This study will address the gap in current knowledge, by examining the impact of theses produced as part of a doctorate in nursing.

METHOD

Aim
To determine the outcomes and outputs of research conducted as part of doctoral studies (traditional PhD, PhD by publication and professional doctorates) in nursing.

Design
An online survey of doctoral graduates was used to access qualitative and quantitative data. The survey consisted of five sections:

- Section 1: PhD topic, university, year of completion and clinical speciality (items 1-4);
- Section 2: research impact on education and training, management, practice, politics, workplace issues and other (items 5-10);
- Section 3: publication output and list of three best publications (items 11-12);
- Section 4: ongoing research and funding (item 13);
- Section 5: demographics details (items 14-16).

Items for the survey were developed using the available literature and included some aspects of Happell's questionnaire on mental health nurses doctoral thesis. The items were trialled with doctoral candidate supervisors for accuracy and content validity. The survey was formatted for online use in Survey Monkey (Waclawski 2012).

Participants
Doctoral nursing graduates who graduated between 2001 and 2012 from universities in Australia and the UK were recruited to complete the online survey.

Data collection
Emails were sent to known professors within the author's networks of nursing or midwifery from universities in both Australia and United Kingdom using university websites. The email contained an invitation to participate in the study, a participant information sheet, a link to the online questionnaire and a printable copy of the survey.

The professors were asked to forward the information to doctorate candidates, whom they have supervised and who had graduated since 2001. By using the professors as points of contact it is unknown how many emails were forwarded to potential participants, therefore there is no way of knowing how many graduates received the emails. The participants were asked to complete the survey either online or in hardcopy which could be returned to the lead researcher's email or postal address.

Ethical considerations

Ethics approval was obtained from the University of Western Sydney. The sample was voluntary and self-selecting as the participants made the choice to access and complete the survey. The participants were notified at the beginning of the survey that some of the information may have been identifiable to the researchers, as they were citing publications and informed them that these data would be de-identified in any publications and reports to ensure anonymity and confidentiality. Participants were able to withdraw at any time without prejudice. All data were stored according to guidelines of the National Health and Medical Research Council of Australia (2007).

Data analysis

Textual data from sections relating to doctoral topic, impact of research and ongoing research were analysed and sorted into the following categories: doctoral topic area; university of completion; year of completion; relevant clinical speciality; the area of change in nursing (education and training, practice, management, political, workplace issues) and on-going projects, topics and funding bodies. Quantitative data related to demographic information were downloaded from Survey Monkey into SPSS version 20 for analysis. Frequencies of occurrence were tallied, and percentages were calculated and displayed in figures and tables. Frequencies of classified impact data into education, management, practice, political, workplace issues were also tallied with percentages calculated and findings tabulated. Publications listed in Section 3 of the survey were collated into Endnote. The refereed journal articles were classified according to participants, name of journal, the country in which the data were collected, and methods that were used in the study. The journals' impact factors were sourced from JCR (Journal Citation Reports) ISI Web of Knowledge. The impact factor and number of citations for each article was tallied and percentages calculated where appropriate through conducting a search using Scopus and Google Scholar websites and these were summarised in tables and figures.

Rigour

To ensure consistency and reduce the potential for response bias, detailed instructions were on the online and hard copy versions of the surveys. Audit trails were also used for tracking participant data and maintaining accuracy of records. Qualitative data and categories were checked and compared to original data for accuracy of interpretation by the members of the team.

FINDINGS

The respondents

Twenty seven doctoral graduates completed the survey from nine universities in Australia (16, 59.2%) and six in England (11, 40.8%) between 2001 and 2012. Nineteen (70.3%) were female and four (14.8%) were male. Four (14.8%) respondents chose not to declare their gender. The respondents ranged in age from 37-60 years with a mean age of 50 years. The majority of graduates were employed in academic areas (16, 59.2%) with five (18.5%) working in clinical areas. Two (7.4%) of the respondents were employed in both clinical and academic areas and four (14.8%) respondents did not reply.

The doctoral theses

The thesis topic areas included: paediatrics, midwifery, nurse focus, sexual health, palliative care, stroke, drug and alcohol, mental health, acute care and women's health. The top three research areas were paediatrics

(6, 22.2%), acute care (5, 18.5%) and the role of nurses in practice (4, 14.8%). Twenty three (85%) of the theses had a patient focus. Four (15%) emanating from Australian studies were related to nursing issues of unethical conduct, resilience in the workplace and nurse/midwife roles. The majority of the theses used a qualitative methodology (22, 81.4%). The others were quantitative (5, 11.1%) or mixed methods (3, 6.7%).

Changes in nursing practices resulting from doctoral research

The majority of respondents perceived their doctoral research had led to changes in nursing. Fourteen (51.9%) respondents thought their research had made an impact in at least one of the six areas listed. There was a fairly even spread across the two countries with six of the 14 (42.9%) respondents from the UK highlighting impacts. Two respondents noted their research had an impact in five of the areas listed. Four respondents stated their research had an impact in two areas. Three (11.1%) respondents did not provide an answer to this section of the survey.

Three (11.1%) respondents noted personal change related to career development and development of research partnerships. Another ten respondents (37.0%) stated their doctoral research had not changed nursing. The reasons given for this lack of change were: recent completion of doctoral thesis, limited dissemination, change of field or redundancy, type of research, and a perceived lack of interest in research by senior managers: my disappointment from the lack of interest by key nursing managers...resulted in my choice to cease working as a nurse in any capacity (R3). Another respondent reinforced this lack of support: I am not working in the environment, so difficult to influence practice personally (R20). One respondent suggested it was difficult to gauge impact although she suggested her publication and conference presentations may have had some impact (R9).

The educational and training impact was seen as the most common area of research impact (13, 48%). These included changes in undergraduate curriculum (e.g. R1, child health workers), illicit drug use (R13, drug users care in medical wards), stroke (R11, patient decisions after minor strokes), and pain education workshops (R12, parental involvement in pain relief post operatively).

Practice impact was noted by eight respondents (29.6%) with information pamphlets and websites developed (e.g. R5, resilience enhancement with nurses), improvement of practice, clinical policy development and nurses being enthusiastic for the practice continuing with it after the research was completed (e.g. R17, a nursing care treatment for arthritis).

Workplace issues two (2, 7.4%) and management change (2, 7.4%) were noted as impact in a few cases which emphasised the employment of specialists (R9 - a psychologist employed and clinical team formed to address clinical issues in research.

Extension of the research into the political arena was noted by four (14.8%) respondents. This included becoming involved in national networks related to research (R8); development of policies by national nursing bodies (R1); development of position statements for nurses (R4, practice nurses in general practice), best practice guideline development (R6, mental health community activism and academics).

Ongoing research

Since graduating, 20 of the respondents had ongoing research projects. Five of these graduates worked solely in clinical positions while others worked in academia. Of the 49 projects documented by the respondents, 42 were funded (ranging from approximately (AU$2,000 to AU$2million) either from internal or external grants. Only six of the 36 externally funded projects involved Australian graduates.

Publication output

Although six studies had no output, the remaining 21 resulted in 88 publications including refereed journal

articles, book chapters and refereed conference presentations. The number of articles published by the graduates ranged from 0-12, with a mean of 3.38 papers. Two of the graduates (graduating in 2003 and 2012) had published 12 papers from their doctoral research. Twenty respondents identified a total of 51 publications which included a book (n=1), book chapters (n=2), refereed journal articles (n=45), refereed conference proceeding (n=1) and conference papers (n=2).

Figure 1: Impact factor of journals published in by respondents best three journal articles (n=45)
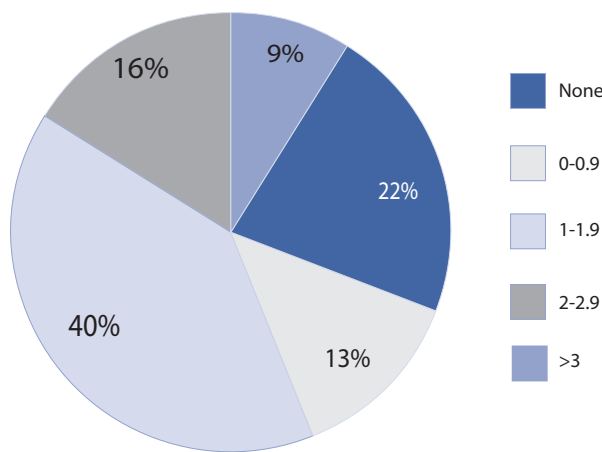
Refereed journal article output

The two journals with the highest impact factor in which the respondents published were the Journal of Advanced Nursing (17.8%) and the Journal of Clinical Nursing (13.3%). A variety of disciplinary journals were utilised by the respondents including nursing, women's health and medical specialities. The impact factors of the journals that respondents published in ranged from 0 to 6.468 (figure 1). Only four articles were published in journals with an impact factor greater than 3. The majority of articles (18, 40.0%) were published in journals with impact factors ranging from 1-1.9. Ten articles were published in journals with no impact factor. No information was collected on reasons for selection of particular journals.

Examining the citations of the respondents' details of their three best journal articles found that (n=45) Scopus citations ranged from 0 to 41 and Google citations ranged from 0 to 75 (figure 2). The majority of the citations for both Scopus and Google were in the 0-9 range (21, 46.7% and 19, 42.2% respectively). Eighteen (40%) articles (published between 1998 and 2012) had no citations noted in Scopus and a total of eleven (24.4%) in Google.
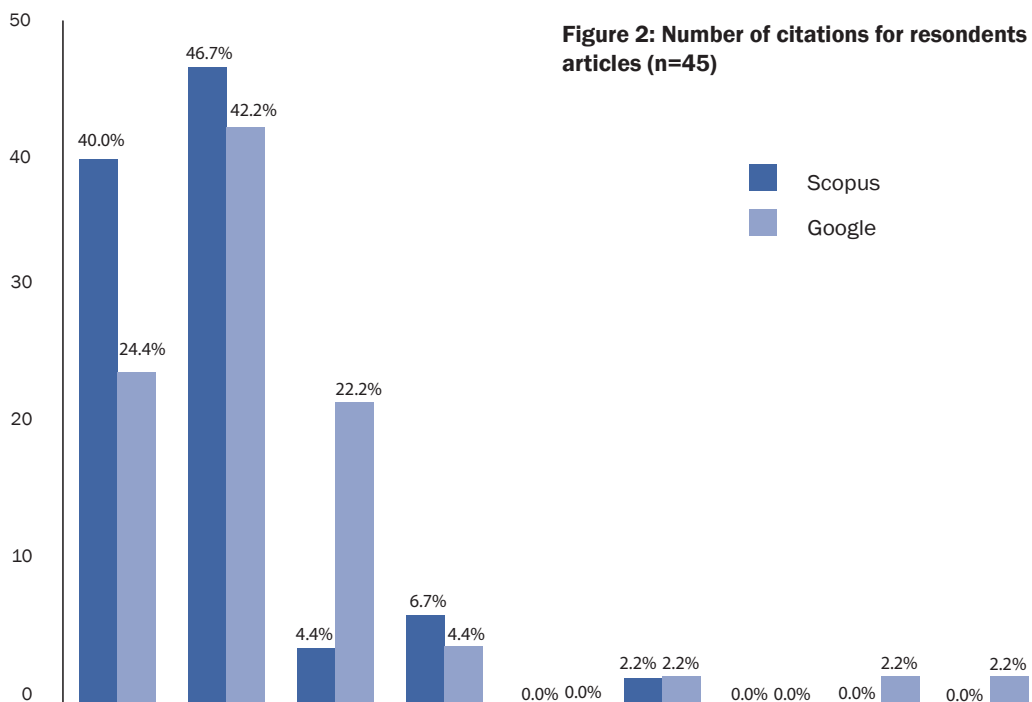
Figure 2: Number of citations for resondents three best journal articles (n=45)

DISCUSSION

This study emphasised the current situation in which most doctoral graduates in Australia and the UK are working in the academy. The situation described in the 1990's was that there should be more doctorally prepared nurses working within clinical settings (Antrobus and Kitson 1999) and that management and health services need to make it easier for nurses to work clinically and to be utilised in decision-making in health (Atkin 1999; Clark 1996). Cohesive and coherent programs were developed from a clear assessment for a structured approach and investment to address all levels of research development, such as transitioning from Masters to Doctorate and beyond (Finch 2007). An example of this is the Clinical Academic Training Pathway (National Institute for Health Research 2013) in the UK which is making a difference by recognising and supporting nurses to pursue clinical/academic careers. However, even with such prestigious programs with high levels of investment, clinical settings are slow to respond in creating appropriate roles. Knowledge transfer is more likely to happen more effectively if doctorally prepared nurses become clinical scholars who share and disseminate knowledge broadly, undertake clinically-focused research, have professional vision and are able to motivate other nurses through their practice and research (Mannix et al 2013).

There seems to be an increasing emphasis on patient and practice-focused research as nurses end the first decade of the 21st century. On reviewing Australian nurse researchers' publications from 1995 to 2000, Borbasi et al (2002) found the most common topic of research was education with a focus on nurse participants. In contrast, when examining publications between 2004 and 2008 (Wilkes and Jackson 2011) the focus had moved towards practice-issue research with patients/family participants. This patient emphasis is supported by the current research and the findings of Bunn and Kendall (2011) and Wilkes and Mohan (2008). With a fewer than 50% of respondents in the current study stating any impact of their research, the trend reported previously continues with variable impact of clinical studies by (Borbasi and Emden 2001; Atkin 1999; Clark 1996).

Publication output is increasingly important in the assessment of a university track record, both in Australia and UK for funding and quality assessment. Impact factors and citations are important aspects of these assessments. Increasingly, hospitals are beginning to see publications as a quality and/or performance indicator. From this study it appears that doctoral graduates are striving to publish in the highest ranking nursing journals with the majority of publications in journals with an impact factor (IF) of between 1.1-1.9. While this IF may not be considered high in the Institute for Scientific Information (ISI) ranking (Smith 2007) it should be noted that the highest impact factor for nursing/midwifery journals in 2012 were Oncology Nursing Forum (IF 2.5), Birth (IF 2.1) and International Journal of Nursing Studies (IF 2.1). However, 22% of the publications in this study were in journals with no IF, although this broadly reflects the fact that many established and sound nursing journals have yet to gain an IF, and the respondents may have deliberately made a decision to publish in journals which will be read by their target audience despite a low or absent IF. The citation rates in this study are relatively low with a mean of five indicating that researchers need to use online sites to encourage greater access to their publications and this could include sites such as Research Gate, The Conversation and open access journals. However, it has to be acknowledged that nurses may have limited access to publishing in open access journals possibly due to financial constraints.

Implications for nursing education

If nursing is to capitalise on the impact/outcomes of and outputs from doctoral research, then doctoral candidates should be encouraged to conduct projects that will ultimately be of value to the profession. Higher degree candidates should be encouraged to publish while they are doing their doctorate. In Australia and the UK more research degree students are taking the publication portfolio approach to doctoral theses and this

could be encouraged. One way of enhancing the translation of research from theses into practice may be to form alliances with clinical services, co-identify research questions with practitioners and service users and have appropriate supervision from both clinical and academic arenas.

Universities should access the clinical area to form partnerships in research and encourage higher degree candidates to be involved in the design and development of projects that the clinical services want and need to improve patient/client care. Grant applications for projects with a clinical focus should include doctoral students as part of the proposal. Educators need to work with clinical management to encourage nurses with doctorates to take up the challenge to work in their specialties and use their knowledge to improve the profession and patient/client care. Without management support this will not happen. Clinical settings need to gear up to promote opportunities for doctorally prepared nurses to more fully engage in clinical research careers. Some studies show this does not readily occur and novice post-doctoral researchers are impeded in terms of their research productivity (Al-Nawafleh et al 2013). Although specifically referring to professional doctorates, Smith (2012) notes the need for an "interface between the nurse manager, the practitioner researcher and academics, before, during and after the professional doctorate". This seems equally relevant for other doctoral programs. Within doctoral programs emphasis should be placed not only on research skills such as data collection and analysis but also on modes of dissemination, knowledge translation, implementation science and publication. Nurturing doctorally prepared nurses after completion of their PhD by sustaining positive research relationships with their supervisors or other mentors could encourage appropriate publication and dissemination strategies as well as foster the continuing development of the nurse.

Limitations

The major limitation on the research is that because of the small sample which is typical of qualitative research, no generalisations can be made. Utilising the survey on a larger sample would provide a broader picture of the impact of doctoral education for the discipline of nursing in the 21st century. However, the study has shone light on an area which is not generally explored.

CONCLUSION

In this small cohort of participants, this study has demonstrated that doctoral nursing research has the potential to have a large impact on nursing practice both at local and national levels. There was variability in outcomes and impact and more work is required to encourage educators and managers to work together to encourage clinical focus in doctoral theses projects.

RECOMMENDATIONS

A closer examination of doctoral theses with a larger sample possibly using doctoral dissertation abstracts could provide a fuller picture of the impact situation. If we are encouraging nurses to complete doctoral studies they should be encouraged to work not only in academia where it is an essential entry criteria, but also need to be encouraged and supported to work in clinical services.

REFERENCES

Al-Nawafleh, A., Zeilani, R.S. and Evans, C. 2013. After the Doctorate: A qualitative study investigating nursing research career development in Jordan. *Nursing and Health Sciences*, 15(4):423-429.

Antrobus, S. and Kitson, A. 1999. Nursing leadership: Influencing and shaping health policy and nursing practice. J*ournal of Advanced Nursing*, 29(3):746-753.

Atkin, D. 1999. Degrees of crisis. *The Australian*, Wednesday 7 April.

Borbasi, S. and Emden, C.C. 2001. Is a PhD the best career choice? Nursing employers' views. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 10(3-4):187-194.

Borbasi, S., Hawes, C., Wilkes, L., Stewart, M. and May, D. 2002. Measuring the outputs of Australian nursing research published 1995-2000. *Journal of Advanced Nursing*, 38(5):489-497.

Brar, K., Boschma, G. and McCuaig, F. 2010. The development of nurse practitioner preparation beyond the master's level: what is the debate about? *International Journal of Nursing Education Scholarship*, 7(1):1-15.

Bunn, F. and Kendall, S. 2011. Does nursing research impact on policy? A case study of health visiting research and UK health policy. *Journal of Research in Nursing*, 16(2):169-191.

Canadian Institute of Health Research. (2012). Guide to Knowledge Translation Planning at CIHR: Integrated and End-of-Grant Approaches. Canadian Institute of Health Research. http://www.cihr-irsc.gc.ca/e/documents/kt_lm_ktplan-en.pdf (accessed 07.01.14).

Carlson, L. H. 2003. The Clinical Doctorate–Asset or Albatross? *Journal of Pediatric Health Care*, 17(4):216-218.

Chase, S.K. and Pruitt, R.H. 2006. The practice doctorate: Innovation or disruption? The Journal of Nursing Education, 45(5):155-161.

Clark, J. 1996. Postgraduate skills: A view from industry: Meeting the Needs of R, D and E Leadership in a rapidly changing social and business environment Dean of Graduate School Meeting. Adelaide.

Dobson, I.R. 2012. PhDs in Australia, from the beginning. *Australian Universities' The Review*, 54(1)94.

Edwardson, S.R. 2010. Doctor of philosophy and doctor of nursing practice as complementary degrees. *Journal of Professional Nursing*, 26(3):137-140.

Finch, J. 2007. Developing the best research professional, Qualified graduate nurses: recommendations for preparing and supporting clinical academic nurses of the future. Report of the UK Clinical Research Collaboration: London.

Golde, C.M. and Walker, G. 2006. Envisioning the future of doctoral education: Preparing stewards of the discipline, Jossey-bass San Francisco.

Graham, I.D. and Tetroe, J. 2007. Whither knowledge translation: An international research agenda. *Nursing Research*, 56(4):586.

Happell, B., Edward, K.L. and Welch, T. 2008. Doctoral graduates in mental health nursing in Victoria, Australia: The doctoral experience and contribution to scholarship. *International Journal of Mental Health Nursing,* 17(4):270-278.

Jackson, D., Peters, K., Andrew, S., Salamonson, Y. and Halcomb, E.J. 2011. "If you haven't got a PhD, you're not going to get a job": The PhD as a hurdle to continuing academic employment in nursing. *Nurse education today,* 31(4):340-344.

Kim, M.J., McKenna, H.P. and Ketefian, S. 2006. Global quality criteria, standards, and indicators for doctoral programs in nursing; literature review and guideline development. *International Journal of Nursing Studies*, 43(4):477.

Mannix, J., Wilkes, L.M. and Jackson, D. 2013. Marking out the clinical expert/clinical scholar/clinical leader: Perspectives from nurses in the clinical area. *BMC Nursing*, 12(12):1-8.

Meleis, A. and Dracup, K. 2005. The case against the DNP: History, timing, substance, and marginalization. *Online Journal of Issues in Nursing,* 10, Manuscript 2. http://nursingworld.org/ojin/topic28/tpc28_2.htm (accessed 18.10.12)

Moule, P. and Goodman, M. 2009. Nursing research: An introduction, Sage.

National Health and Medical Research Council. 2007. National Statement on Ethical Conduct in Human Research 2007 - Updated 2009. Available: http://www.nhmrc.gov.au/guidelines/publications/e72.

National Institute for Health Research. 2013. Clinical Academic Training Programme for Nurses, Midwives and Allied Health Professionals [Online]. NIHR Trainees Coordinating Centre, Leeds Innovation Centre, 103 Clarendon Road, Leeds, LS2 9DF United Kingdom: National Institute for Health Research. http://www.nihrtcc.nhs.uk/cat/ (accessed 08.08.13).

Nickitas, D.M. and Feeg, V. 2011. Doubling the number of nurses with a doctorate by 2020: predicting the right number or getting it right? *Nursing Economics*, 29(3):109-111.

O'Baugh, J., Wilkes, L.M., Vaughan, K. and O'Donohue, R. 2007. The role and scope of the clinical nurse consultant in Wentworth area health service, New South Wales, Australia. *Journal of Nursing Management*, 15(1):12-21.

Smith, D.R. 2007. Historical development of the journal impact factor and its relevance for occupational health. *Industrial Health,* 45(6):730-742.

Smith, N.J. 2012. Professional doctorates and nursing practice contribution: a systematic literature search and descriptive synthesis. *Journal of Nursing Management.* 21(2):314-326.

Waclawski, E. 2012. How I use it: Survey Monkey. *Occupational Medicine*, 62(6):477.

Watson, R., Thompson, D. and Amella, E. 2011. Doctorates and nurses. *Contemporary Nurse: A Journal for the Australian Nursing Profession,* 38(1-2):151-159.

Wilkes, L. and Jackson, D. 2011. Trends in publication of research papers by Australian-based nurse authors. *Collegian*, 18(3):125-130.

Wilkes, L. and Mohan, S. 2008. Nurses in the clinical area: Relevance of a PhD. *Collegian*, 15(4):135-141.

Registered nurses improving screening rates for non AIDS related comorbidities in people living with HIV

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ABSTRACT

Objective
To establish whether a nurse-led screening and brief intervention project could improve screening rates for non-AIDS comorbidities in people living with Human Immunodeficiency Virus (HIV).

Design
A pre-post quantitative audit was used to evaluate the intervention of nurse-led comorbidities screening.

Setting
A publicly-funded, metropolitan, outpatient sexual health service in Western Sydney, New South Wales, Australia.

Subjects
One hundred medical records of people living with HIV were reviewed in each of the pre and post audits.

Interventions
A standardised co-morbidities screening tool was developed; education sessions were conducted with the registered nurses (RNs) and written and electronic resources were used as an adjunct in screening and educating clients.

Main outcome measure
To determine if interventions, including development of a structured screening tool and education with the RNs, would improve rates of nurse-led co-morbidities screening in people with HIV attending the service.

Results
All of the co-morbidities screening done in year two was initiated by the sexual health RNs, rather than the medical officers. Improved rates of screening were noted in 20 of the 22 audited items, with 13 of these showing a statistically significant increase in the one year time period from audit one to audit two. Potential and existing co-morbidities were identified and managed according to local protocols.

Conclusion
RN led comorbidities screening for people with HIV can improve rates of screening in this client group. The screening tool has now become part of nurse led standardised annual care for clients with HIV.

INTRODUCTION

In the developed world, life expectancies for HIV positive patients have risen dramatically, and now approach those of the general population (Samji et al 2013). Combination antiretroviral therapy regimens have become more effective, better tolerated, and have simpler dosing requirements (The Antiretroviral Therapy Cohort Collaboration 2008). As a result, people living with HIV (PLHIV) are now faced by challenges associated with ageing (Lewden et al 2008). Non-AIDS associated comorbidities, including cardiovascular, renal and bone disease occur at higher rates among PLHIV, necessitating a broader model of chronic disease management (Deeks and Phillips 2009). To facilitate this, comorbidity screening guidelines for PLHIV, focusing on prevention of comorbidities, have been developed. The guidelines facilitate management of HIV infection as a chronic disease, recommending screening tests and identification of family history and lifestyle risk factors for cardiovascular, renal and bone disease (Foster et al 2011). With the shift to managing HIV as a chronic disease, the future of HIV nursing is likely to occur in a primary health care setting rather than a specific 'AIDS' or infectious disease ward. The Western Sydney Sexual Health Centre (WSSHC), a publicly funded, metropolitan, outpatient sexual health clinic, provides care and management to over 300 HIV positive people. It was identified that rates and consistency of comorbidity screening could be improved in our cohort of PLHIV. This study aimed to establish whether a nurse led screening and brief intervention project could improve screening rates for this population in the sexual health clinic.

Literature Review

The effectiveness of nurse led screening for sexually transmitted infections (STIs), including HIV, in sexual health clinics is well established (Mindel et al 2009; Munday et al 2005; Miles et al 2003). However, the practice of screening people diagnosed with HIV for non AIDS related comorbidities is a recent recommendation, and as such, no relevant literature on implementing and incorporating screening protocols for this population into clinical practice was found in the literature. Lock et al (2006) suggest there is only circumstantial evidence of the effectiveness of nurse led brief interventions in primary care. However, implementing nurse-led interventions in other fields have been found to be successful. Slain et al (2013) evaluated whether screening, brief intervention, and referral to treatment (SBIRT) could be incorporated into the emergency nursing workflow. Although there were problems with execution of SBIRT, largely due to the emergency nurses clinical responsibilities, they found that identification of at-risk alcohol and drug use by emergency department (ED) nurses was feasible (Slain et al 2013). Désy et al (2010) also evaluated the use of SBIRT by emergency nurses, using a brief intervention consisting of 5-10 minutes of motivational counselling, and provision of educational brochures and a list of community resources to patients. They found nurses using SBIRT can impact alcohol consumption and potentially reduce injuries and ED visits (Désy et al 2010). A meta-analysis of interventions that increase use of adult immunisation and cancer screening services conducted by Stone et al (2002) found screening rates are likely to improve where the health care organisation supports performance of these activities through organisational changes in staffing and clinical procedures. These include use of separate clinics, use of planned care visits for prevention or designation of non-physician staff to do specific prevention activities (Stone et al 2002). Anaya et al (2008) conducted a randomised controlled trial to evaluate the effectiveness of three different methods of screening for HIV. They found that nurse initiated screening increased testing rates significantly, compared to physician initiated screening (Anaya et al 2008). Other factors impacting on screening rates include use of a standardised, validated instrument and integration into a clinical setting's existing patient care processes, as identified by Johnson et al (2013).

METHOD

In this study an audit of the medical records of 100 clients with HIV, attending WSSHC in 2011 was conducted, to determine whether recommended screening for non-AIDS comorbidities had been done in the previous 12 months. Audited items included documentation of family medical history; assessment of lifestyle risk factors; mental health/mood assessment; vital signs and other clinical measurements; assessment for cardiovascular and fracture risk with use of online assessment tools if over 40 years; and recommended urine and blood tests. See table 2 for full list of audited items.

Table 1: RN Interventions

Education Sessions provided to RNs
• HIV and Cardiovascular Disease
• HIV and Renal Disease
• Screening for non AIDS comorbidities - rationale for collecting client history
- how/what to ask
- how to respond
• Use of brief interventions and behaviour modification with clients
• Motivational interviewing
• Online education (Quit Smoking/brief interventions)
Development of Tools
• Development and implementation of comorbidities structured screening tool
• Development of readily accessible prompt question cards for lifestyle assessment (mood assessment, smoking, exercise, nutrition, alcohol and other drugs)
Resources
• Internet access and use of electronic screening tools for cardiovascular (CV) and fracture risk (FRAX) for clients over 40 years
• Use of printed information resources for clients
• Posters in clinic room on maintaining healthy weight
• Tape measures for weight circumference and electronic BMI calculator

Interventions aimed at up-skilling the RNs to lead comorbidities screening were then implemented. These included development of an RN-led structured screening tool and education sessions. The screening tool included an assessment of lifestyle and family history; clinical measurements and both serology markers and urine tests as listed in table 2. It was based on recommendations by Foster et al (2011) and adapted, in consultation with the senior staff specialists, to suit the HIV positive client population attending WSSHC. Educational sessions included presentations outlining rationale for implementation of nurse-led screening, HIV and non AIDS related comorbidities; use of the screening tool and motivational interviewing/brief intervention techniques. Cards with prompt questions were developed to standardise history taking (family medical history, mood assessment, smoking, alcohol and drug use, nutrition and physical activity). Where available, history questions were based on validated tools. For example, the AUDIT Alcohol Consumption Questions (AUDIT-C) screening tool was used for the detection of problem drinking (Bush et al 1998). Access to online tools for assessing cardiovascular and fracture risk was provided and written resources to encourage lifestyle changes were made available for nurses to distribute to clients. The nurses were encouraged to discuss making lifestyle changes with clients who were identified as being at increased risk for comorbidities, either through family history, lifestyle history or measurement of blood pressure or other physical parameters which were outside the normal range. Discussion of lifestyle changes included use of motivational interviewing techniques and brief interventions, such as the 5A's for Smoking Cessation (Australian Government Department of Health

2004), and/or referral to an appropriate service such as Quitline (Australian Government 2012). Existing clinical protocols at WSSHC enabled RNs the opportunity to offer comorbidities screening to clients with HIV at the time of blood collection for routine HIV monitoring. All RN interventions were discussed and approved by the multidisciplinary health care team, and the clinic Medical Director gave delegation to the nurses to order the investigations on the approved screening checklist. The RN interventions are summarised in table 1.

In 2012, following implementation of the nurse led screening, a second medical record audit of comorbidities screening at WSSHC was conducted. Results between audit one and audit two were compared and statistical analysis was performed using SPSS Statistics version 20.0 (IBM SPSS Statistics). The study was approved by the Western Sydney Local Health District Human Research Ethics Committee as a quality assurance project.

Table 2: Results of audit pre and post nurse-led comorbidities screening

Audit Item	Audit 1 Pre-intervention	Audit 2 Post-intervention	p-value
No. of HIV+ clients	100	100	-
Gender	75 M; 24 F; 1 TG	74 M; 26 F	-
Age in years (median)	41	42	-
Clinical Measurements/Assessments			
Blood pressure	94%	94%	1.000
Waist circumference	8%	43%	<0.001
Height	32%	72%	<0.001
Weight	97%	96%	0.702
Body mass index (BMI)	21%	63%	<0.001
STI screen done	42%	45%	0.669
Cardiovascular risk assessment	0%	7%	*
Fracture risk assessment	0%	10%	*
Assessment, documentation of history and brief intervention			
Mental health / mood assessment	57%	69%	0.079
Sexual history	70%	81%	0.071
Family history	34%	43%	0.191
AOD history	38%	63%	<0.001
Smoking history	39%	62%	0.001
Nutrition history	15%	57%	<0.001
Exercise history	7%	48%	<0.001
Clinical Investigations			
Urinalysis	18%	38%	0.002
Urine protein creatinine ratio	45%	68%	0.001
HbA1c / fasting glucose	30%	53%	0.001
Fasting lipids	19%	28%	0.133
Vitamin D	37%	59%	0.002
Parathyroid hormone (PTH)	17%	42%	<0.001
Hepatitis BsAb (measure of immunity)	51%	73%	0.001

* Not included in statistical analysis as no measurement pre-intervention

Findings

The age and gender of clients were similar in the pre and post-intervention audits. Audit 1 results indicated generally low levels of comprehensive comorbidity screening of HIV positive clients. Prior to comorbidity screening being led by the RNs, smoking assessment had been attended for only 39%; alcohol and other drug (AOD) assessment 38%; nutrition assessment 15%; body mass index (BMI) calculation 21%; mental health assessment 57%; and fasting lipids 19% of PLHIV. Following the RN led interventions, there were statistically significant increases in the majority of audited items. Cardiovascular and fracture risk had not been calculated for any of the clients during 2011 and therefore the increase in these assessments in 2012 cannot be considered statistically significant. All of the comorbidities screening done in year two were initiated by the sexual health RNs, rather than the medical officers.

Results are presented under the headings of 'Clinical Measurements/Assessments'; 'Assessment, documentation of history and brief intervention'; and 'Clinical Investigations'. The full list of results is shown in table 2.

Clinical Measurements/Assessments:

Blood pressure and weight were measured consistently both pre and post nurse led screening, as this was part of the existing clinic protocol. However, statistically significant increases occurred for measurement of waist circumference (p = <0.001); and BMI calculation (p = <0.001). Calculation of cardiovascular and fracture risk for clients over 40 years, using electronic resources, was done for the first time, so not included in statistical analysis. These risk assessments were limited by the fact that all clinical information necessary for the calculation, for example, fasting cholesterol level, may not have been available at the time of consultation with the RN.

Assessment, documentation of history and brief intervention:

There were statistically significant increases for recording of alcohol and drug history (p = <0.001); smoking history (p = 0.001); nutrition history (p = <0.001) and exercise/physical activity history (p = <0.001). Other history items (family, sexual history and mood assessment) also recorded increases, although these were not statistically significant.

Clinical Investigations:

There were increases in all recommended clinical investigations for PLHIV. All but one of these was statistically significant. Fasting lipids was often difficult to achieve due to non-awareness or non-compliance of clients to fast before attending.

Limitations

Although the RNs used brief interventions to assist clients to make behaviour modifications, data on use or outcome of the interventions was not recorded in this study. It was also outside the scope of this study to assess the acceptability of comorbidities screening, either with clients or staff.

DISCUSSION

This study provides evidence of the usefulness of nurse led interventions in screening people with HIV for non AIDS related comorbidities. Development of the RN-led HIV comorbidities screening tool, combined with nurse education, and use of written and electronic resources has significantly increased client comorbidity screening at WSSHC. Potential and actual comorbidities have been identified and managed appropriately, either at the clinic or by referral to the client GP, potentially improving client outcomes. Further to increased recording of history, RNs implemented brief interventions and/or referrals to the doctor/social worker or other services, to address lifestyle issues that arose from the discussions.

Wisby and Capell (2005) suggest that workforces should be encouraged to deliver innovative, high quality health care, particularly evident in the area of sexual and reproductive health (p.14). Part of the success of the new model of care can be attributed to the approach to planning the nurse led screening. Presenting the evidence and benefits of change is important. Also necessary is careful planning, having resources and processes in place and consideration of nurses roles and expertise (Hewitt-Taylor 2013). Development of the comorbidities screening tool, which was appropriate to the service and the population, simplified the screening process for the nurses. This has previously been identified by Barnard (2009). Support of the medical officers of the sexual health clinic towards the new approach to care of the HIV clients remains crucial. This is reinforced by Stone et al (2002) who found that organisational support, through changes in staffing and clinical procedures was likely to improve their screening rates. Anecdotal responses from clients attending the service towards this newer model of care has been overwhelmingly positive. The RNs increased scope of practice has potential for increased role satisfaction, and for the physicians, freeing up of their time allows them to manage clients requiring more complex medical intervention. RN led HIV comorbidities screening has now become part of standard care for PLHIV at WSSHC and is being conducted annually for each client.

CONCLUSIONS

A nurse led model of screening people with HIV for non AIDS related comorbidities can significantly improve screening rates. This will potentially improve client outcomes, and increase role satisfaction for nurses and physicians.

RECOMMENDATIONS

Further research is suggested in the following areas:

- to determine the transferability of this nurse-led model into other sexual health or primary care settings and with other populations;

- to assess the success of the nurse led brief interventions in helping clients to modify lifestyle issues, including quitting smoking, weight loss or reducing alcohol and other drug use; and

- to explore the acceptability of comorbidities screening, with both clients and healthcare staff.

REFERENCES

Anaya, H.D., Hoang, T., Golden, J.F., Goetz, M.B., Gifford, A., Bowman, C., Osborn, T., Owens, D,K., Sanders, G.D. and Asch, S,M. 2008. Improving HIV screening and receipt of results by nurse-initiated streamlined counseling and rapid testing. *Journal of General Internal Medicine*, 23(6):800-807.

Australian Government. 2012. Quitline. http://www.quitnow.gov.au/ (accessed 03.09.14).

Australian Government Department of Health. 2004. Smoking cessation guidelines for Australian general practice. Desktop guidelines and patient education materials. http://www.health.gov.au/internet/main/publishing.nsf/Content/health-pubhlth-publicat-document-smoking_cessation-cnt.htm (accessed 03.09.14).

Barnard, S. 2009. Implementing an SBIRT (screening, brief intervention and referral to treatment) program in the emergency department: challenges and rewards. *Journal of Emergency Nursing*, 35(6):561-563.

Bush, K., Kivlahan, D.R., McDonell, M.B., Fihn, S.D. and Bradley K.A. 1998. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. ACQUIP project. Alcohol Use Disorders Identification Test. *Archives of Internal Medicine*, 158:1789–1795.

Deeks, S.G. and Phillips, A,N. 2009. HIV infection, antiretroviral treatment, ageing, and non-AIDS related morbidity. *BMJ*, 338:a3172.

Désy, P.M., Howard, P.K., Perhats, C. and Li, S. 2010. Alcohol screening, brief intervention, and referral to treatment conducted by emergency nurses: an impact evaluation. *Journal of Emergency Nursing*, 36(6):538-545.

Foster, R., Morris, S., Ryder, N., Wray, L., and McNulty, A. 2011. Screening of HIV-infected patients for non-AIDS-related morbidity: an evidence-based model of practice. *Sexual Health*, 8(1):30–42.

Hewitt-Taylor, J. 2013. Planning successful change incorporating processes and people. *Nursing Standard*, 27(38):35-40.

Johnson, J.A., Woychek, A., Vaughan. D. and Seale, J.P. 2013. Screening for at-risk alcohol use and drug use in an emergency department: Integration of screening questions into electronic triage forms achieves high screening rates. *Annals of Emergency Medicine*, 62(3):262-266.

Lewden, C., May, T., Rosenthal, E., Burty, C., Bonnet, F., Costagliola, D,. Jougla, E., Semaille, C., Morlat, P., Salmon, D., Cacoub, P. and Chêne, G. 2008. Changes in causes of death among adults infected by HIV between 2000 and 2005: The "Mortalite 2000 and 2005" surveys. *Journal of Acquired Immune Deficiency Syndromes*, 48(5):590-598.

Lock, C.A., Kaner, E., Heather, N., Doughty, J., Crawshaw, A., McNamee, P., Purdy, S. and Pearson, P. 2006. Effectiveness of nurse-led brief alcohol intervention: a cluster randomized controlled trial. *Journal of Advanced Nursing*, 54(4):426-439.

Miles, K., Penny, N., Power, R. and Mercey, D. 2003. Comparing doctor- and nurse-led care in a sexual health clinic: patient satisfaction questionnaire. *Journal of Advanced Nursing*, 42(1):64-72.

Mindel, A., Fenema, J.S.A., Christie, E. and van Leent, E. 2009. Nurse-led sexually transmitted disease clinics: staff perceptions concerning the quality of the service. *International Journal of STD & AIDS*, 20(11):754-756.

Munday, P.E., Allan, A., Hearne, S. and Gubbay, A. 2005. The role of the nurse in screening asymptomatic male and female patients in a sexual health clinic. *International Journal of STD & AIDS*, 16(4):281-283.

Samji, H., Cescon, A., Hogg, R.S., Modur, S.P., Althoff, K.N., Buchacz, K., Burchell, A.N., Cohen, M., Gebo, K.A., Gill, M.J., Justice, A., Kirk, G., Klein, M.B., Korthuis, P.T., Martin, J., Napravnik, S., Rourke, S.B., Sterling, T.R., Silverberg, M.J., Deeks, S., Jacobson, L.P., Bosch, R.J., Kitahata, M.M., Goedert, J.J., Moore, R. and Gange, S.J. North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) of IeDEA. 2013. Closing the Gap: Increases in Life Expectancy among Treated HIV-Positive Individuals in the United States and Canada. PLoS ONE. 8(12):e81355 (accessed 27.03.15).

Slain, T., Rickard-Aasen, S., Pringle, J.L., Hegde, G.G., Shang, J., Johnjulio, W. and Venkat, A. 2013. Incorporating screening, brief intervention, and referral to treatment into emergency nursing workflow using an existing computerized physician order entry/clinical decision support system. *Journal of Emergency Nursing*, DOI:http://dx.doi.org/10.1016/j.jen.2013.10.007 (accessed 03.09.14).

Stone, E.G., Morton, S.C., Hulscher, M.E., Maglione, M.A., Roth, E.A., Grimshaw, J.M., Mittman, B.S., Rubenstein, L.V., Rubenstein, L.Z. and Shekelle, P.G. 2002. Interventions that increase use of adult immunization and cancer screening services: a meta-analysis. *Annals of Internal Medicine*, 136(9):641-645.

The Antiretroviral Therapy Cohort Collaboration. 2008. Life expectancy of individuals on combination antiretroviral therapy in high-income countries: a collaborative analysis of 14 cohort studies. *Lancet*, 372: 293–9. doi:10.1016/S0140-6736(08)61113-7 (accessed 27.03.15).

Wisby, D. and Capell, J. 2005. Implementing change in sexual health care. *Nursing Management*, 12(8):14-16.

Enhancing the online learning experience using virtual interactive classrooms

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ABSTRACT

Objective
Enhancing online learning through the design, implementation and evaluation of a project piloting virtual interactive classrooms.

Design
The virtual interactive classroom (classroom) design was underpinned with current best practice in higher education pedagogy. Evaluation of the project used a cross-sectional, electronic survey.

Setting
This study was undertaken at a School of Nursing and Midwifery in a Western Australia University.

Subjects
144 nurse students: 130 undergraduate, 14 postgraduate.

Interventions
Classroom options were introduced into two online units, incorporating blended learning approaches and promoting active participation in learning.

Main outcome measures
Quantitative measures included student demographics, ease of classroom navigation, percentage participating in the classroom option in real-time and those who did so actively (questioning, discussing, etc.). Qualitative data of student learning experiences informed the findings further.

Results
Fifty-six percent of enrolled students participated in classrooms in real-time and 9% viewed recorded sessions. The survey response rate was 56%. Non-traditional students were highly represented; with 65% of undergraduate and 100% of postgraduate students being mature-age. Seventy-one percent of undergraduate and 89% of postgraduate survey responders who participated in classrooms in real-time did so actively. The most common reason for non-participation in real-time was family and work commitments (76%). Participating students gave overwhelming positive feedback of the classroom experience, in particular around its interactive nature, blended learning approaches and user-friendliness.

Conclusion
The classrooms supported active student participation in online learning. Students valued the interactive and blended learning features, known to be congruent with effective learning, student satisfaction and retention.

INTRODUCTION

In recognition of the importance of online learning options to the rising number of non-traditional nurse students juggling study, home and work commitments, and the potential limitations of traditional online delivery, a project was undertaken to enhance online learning via interactive classroom technology. This paper describes the development, design, implementation and evaluation of this project.

Nursing is an increasingly popular degree choice with students categorised as non-traditional (Department of Education, Employment and Workplace Relations (DEEWR), 2010) including those who are mature-age (21 years old and above on entry) (Bradley Committee 2008), from lower socio-economic status (LSES) backgrounds and entering via non-traditional pathways such as portfolio routes (James et al 2010; Bradley Committee 2008). The importance of non-traditional students to nursing has been acknowledged by Donaldson et al (2010 p.655) as "a rich and necessary source of recruitment for the nursing profession…" However they also recognize that "…this has resulted in a changing student nurse profile". This altered profile includes a growing population of students for whom home and paid work commitments compete directly with requirements of university study (Dante et al 2011). Reduced participation in learning activities is regarded as a major factor affecting retention (Glogowska et al 2007; Glossop 2002), unsurprisingly therefore, lower retention rates are reported among non-traditional nurse students (Pryjmachuk et al 2009; Jeffreys 2012). With the predicted shortfall of qualified nurses within the Australian and global healthcare workforce (Health Workforce Australia (HWA) 2012; Royal College of Nursing (RCN) 2011; Buerhaus et al 2008), the support of nursing students to degree completion and registration is of increasing significance. Online learning, a progressively popular choice in higher education (James et al 2010), is one way of providing this support, offering flexibility and accessibility for time-poor students (Ali et al 2004). Regarding online provision as a solution for these students requires caution however, as online delivery is linked to less effective learning, reduced student satisfaction (Australian Council for Educational Research (ACER) 2008) and lower retention rates (Tinto 2012; Simpson 2004) and is considered a less favorable option to face to face teaching by leading nurse educators (Allen and Seaman 2011).

LITERATURE REVIEW

Current literature in pedagogic excellence places student engagement as central to effective learning, student satisfaction and retention (Casuso-Holgado et al 2013; Kuh et al 2008). Engagement is defined as "students' involvement with activities and conditions likely to generate high quality learning" (ACER 2008 p.vi). Leading educational theorist Vincent Tinto advises successful learning activities must promote both academic engagement (active participation in learning materials and activities) and social engagement (shared interaction with university peers) (Tinto 2012). Whilst face-to-face delivery can easily incorporate these tenets, online delivery traditionally involves individual and isolated student access to learning materials limiting the opportunity for active participation. The introduction of technology to online delivery such as opinion polls, discussion platforms and debating scenarios is one method of increasing this (Moreno and Mayer 2007).

A further limitation of online delivery can be the overreliance of student learning on reading and completion of written tasks. The literature on pedagogic excellence emphasises the importance of appealing to a wider range of student learning styles through the integration of written, visual and audio materials (Birch and Sankey, 2008). The integration of technology to transform online delivery from traditional platforms of content to vehicles that support blended learning approaches are therefore paramount to the further development of effective online learning (Duffy and Bruns 2006). Whilst nursing students are increasingly reliant on online delivery, nurse education has been slow to embrace such changes (Rounds and Rappaport 2008).

METHOD

Study objective

To enhance online learning in two nurse theory units through a pilot project to design, implement and evaluate the introduction of interactive classroom technology.

Project design

Adobe Connect interactive tutorial classrooms were chosen as the vehicle to support the integration of blended learning and interaction opportunities recommended in the literature on pedagogic excellence. One undergraduate (UG) and one postgraduate (PG) unit piloted the classrooms. The UG unit in Primary Health Care (130 students enrolled) and the PG unit in Advanced Nursing Science (14 students enrolled) had previously been delivered online using the traditional methods of lecture notes, guided reading, individual question and answer activities and discussion boards, the latter used infrequently by students. The pilot introduced an additional option of taking part in weekly ninety minute, interactive classrooms throughout the semester.

Interactive classrooms were conducted in the evening, in anticipation of daytime work and family commitments. Students were sent a URL link via email to enter the classroom. During the first session tutors demonstrated classroom navigation. All sessions incorporated a range of blended and interactive learning opportunities. Content was shared through PowerPoint slides, images, case-studies, audio and video clips. Within the interactive classroom, students could see and hear tutors in real-time and actively participate via shared polls, quizzes, debates and discussion in real-time using either a microphone or written comments or chose to watch and listen only. A chat space provided the opportunity to socialise before sessions commenced and for a period of time following completion of the class. Recordings were also made available to all students.

Survey design

A descriptive cross sectional survey of multiple-choice, open ended and free text response options was used to evaluate the pilot project. The survey was piloted with four student nurses and a panel of independent nurse educators prior to distribution to establish face and content validity.

Respondents

All 144 students enrolled in the units incorporating the classrooms were surveyed, whether or not they participated in the interactive classrooms.

Data collection

The electronic survey was distributed via student email at the end of semester. Data were also gathered via the Adobe Connect data management program on numbers of students participating in classrooms in real-time and accessing later recordings.

Data analysis

Quantitative data were analysed using descriptive statistics; percentages were rounded up to the nearest whole number. Thematic analysis of qualitative responses was undertaken by the researchers, using a consensus approach to develop categories.

Ethics

Ethical approval was obtained from the University Ethics Committee. Students were assured that their survey responses would remain anonymous and they would not be identified by any of the comments that may be used in future publications or presentations. Consent to participate in the study was inferred by participating in the survey. Students were informed that a decision not to participate would not result in any academic or other penalty.

RESULTS

Participation in classroom option

Of the total 144 students enrolled in the online units, a total of 56% participated in classrooms in real-time and 9% viewed a later recording (see table 1).

Table 1: Real-time and recordings classroom uptake

	Undergraduate unit	Postgraduate unit	Total
Total enrolment in online units offering classroom option	130	14	144
Participated in classroom option (real-time)	69/130 (53%)	11/14 (79%)	80/144 (56%)
Did not participate in classroom option (real-time)	61/130 (46%)	3/14 (21%)	64/144 (44%)
Accessed recording at a later date	11/130 (8%)	2/14 (14%)	13/144 (9%)

Survey response rate

Fifty-six percent of students enrolled in the online units returned completed surveys. Of these, the response rate of students who had participated in classrooms in real- time was 71%. The response rate of enrolled students who had not was lower, at 28% (see table 2).

Table 2: Survey response rate

	Undergraduate students	Postgraduate students	Total
Total enrolled	130	14	144
Survey response rate	69/130 (53%)	11/14 (79%)	80/144 (56%)
Responders who participated in real-time classrooms	48/69 (70% survey response)	9/11 (82% survey response)	57/80 (71%)
Responders who did not participate in real-time classrooms	16/61 (26% survey response)	2/3 (67% survey response)	18/64 (28%)

Figure 1: Reasons for non-participation
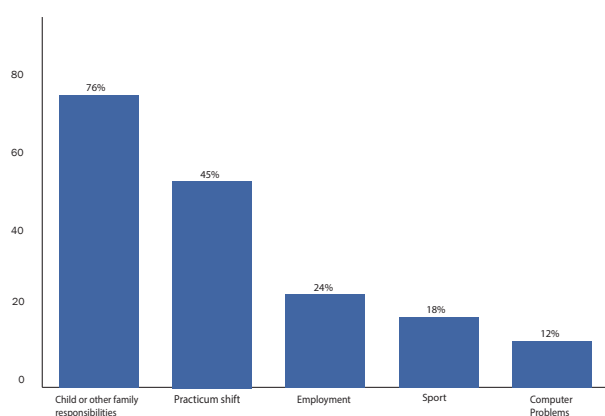
Non-participation of classroom option

Seventeen of the 18 students responding to the survey who did not participate in the classrooms in real-time provided reasons (students could indicate more than one) these being: child and other family responsibilities 76% (n=13/17), practicum placement 53% (n=9/17), paid employment 24% (n=4/17) sporting commitment 18% (n=3/17) and computer problems 12% (n=2/17) (see figure 1).

Demographics

Ninety-five percent of the UG and 64% of the PG survey respondents were female. A high percentage were identified as non-traditional, including over 65% of UG (n=45/69) and 100% of PG (11/11) being mature age and 45% (31/69) of UG and 36% (4/11) from low socio-economic status (ascertained by home postcode). Seventy-eight percent (54/69) UG and 100% PG (11/11) lived away from parents. None identified themselves as being of Aboriginal or Torres Strait Islander origin (see figure 2).

Figure 2: Student demographics
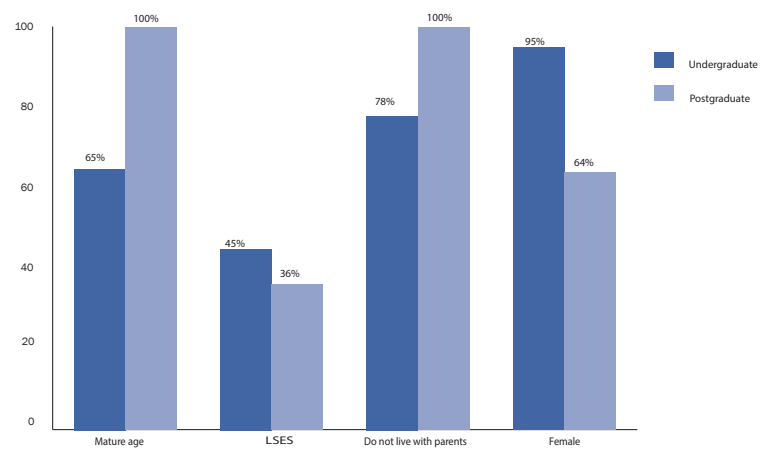
Active participation

Seventy-one percent (n=34/48) of UG student and 89% (n=8/9) of PG student survey responders who had participated in classrooms in real-time indicated they had done so actively (answered questions, took part in discussions, quizzes, etc.). Fourteen of the 15 (93%) of the combined UG and PG student survey responders who chose to observe and listen only stated their reasons for this choice. Seventy-one percent (n=10/14) of students indicated their questions had already been answered by others, 36% (n=5/14) said had no questions to ask and 14% (n=2/14) stated they felt too tired. None of the respondents indicated lack of confidence to be a reason (see figure 3).

Figure 3: Reasons for lack of active participation in the classrooms: all students
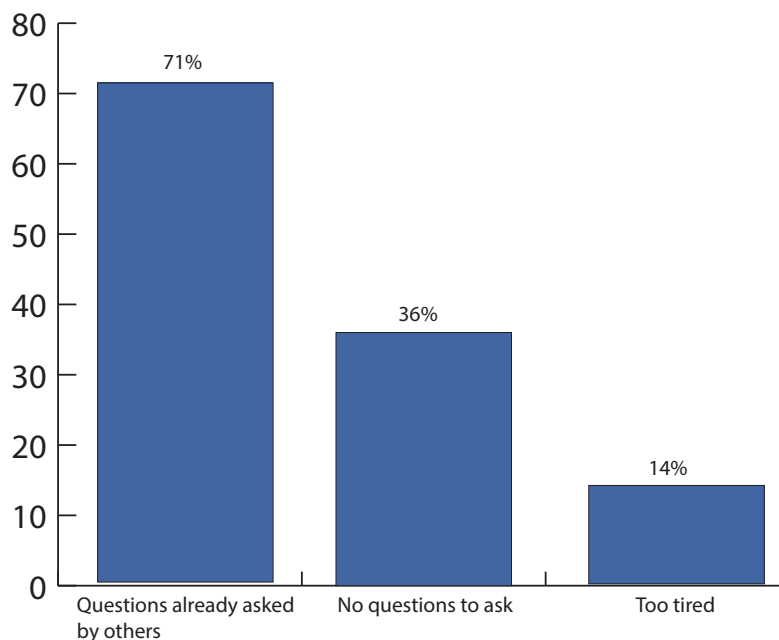
Navigation

Sixty-eight percent (n=39/57) of students who participated in classrooms responded to questions about navigation (access into classroom and user-friendliness). Of these students 82% (n=32/39) found classrooms very easy to navigate, 15% (n=6/39) had initial concerns or difficulties in week one and 3% (n=1) stated the navigation was difficult due to poor internet access (see figure 4).

Figure 4: Navigation experiences of classrooms

Easy
Initial difficulties
Difficult
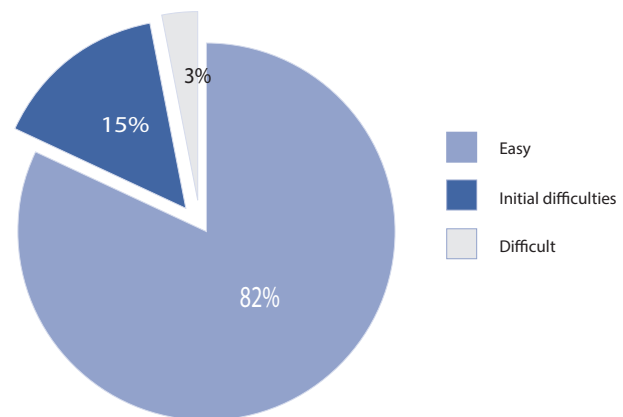
Figure 5: Categories of student learning experiences
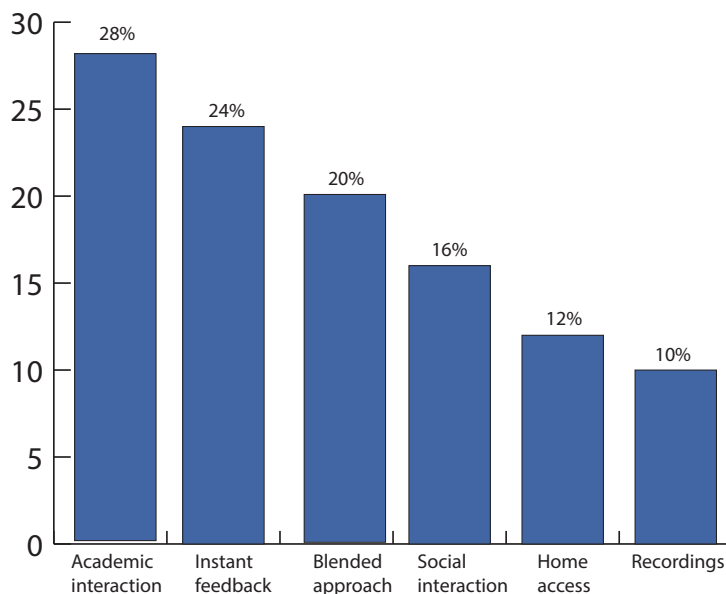
Student learning experiences

Fifty (88%) classroom participants chose to provide free text responses to describe classroom learning experiences; only 6% (n=3/50) were negative. Student observations were thematically analysed and organised into six categories. As responses across UG and PG students were very similar, findings were combined. Figure 5 shows the percentage responses per category.

A description of the six categories and supporting student raw data are provided in table 3. Analysis of qualitative data on the question of improvement suggestions for the classrooms and those related to navigation are also supplied.

Suggestions for future improvements/changes

Fifty-one percent of students (n=29/57) gave answers regarding future improvements for classroom sessions (more than one comment could be offered). Sixty-nine percent (n=21/29) indicated no changes were necessary. Two (7%) gave suggestions for improvements, being: a different session time and the need for clear guidelines around social interaction during class. Fifty-eight percent (n=17/29) of all responses suggested more online units should offer these classrooms (see figure 6).

Figure 6: Suggested improvements for future classroom sessions: all students
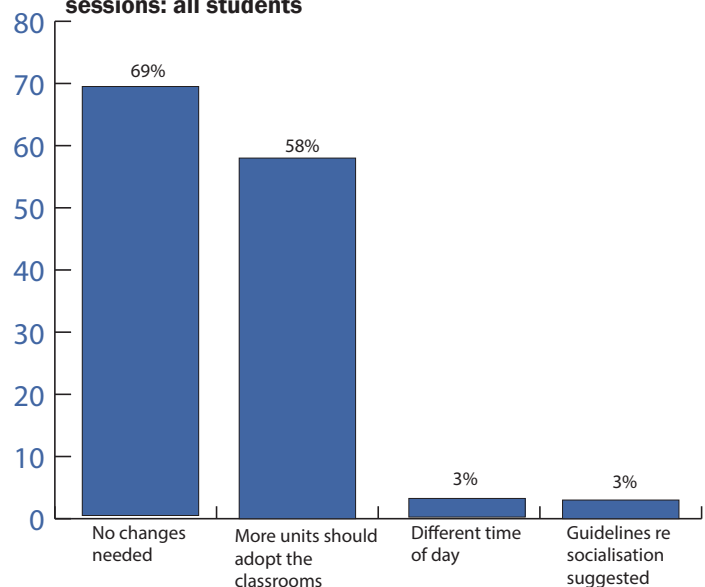
Table 3: Learning experiences, navigation and suggestions for improvement

Category	Description	Raw data examples
Academic engagement	The most frequent comment was around the high value students placed on the opportunity to ask questions and have other interaction with academic aspects of the sessions. A frequently reported comment referred to the high value students placed on their ability to share opinions on learning material.	"The interactive nature of the tutorials made me feel very welcome to ask questions and provide my opinion on various topics that we discussed". "Great forum for those who can be intimidated in a classroom setting and not usually participate in discussions". "I found it made being [an] online student possible".
Instant feedback	The second most common category of comment was around the benefit of instant answers to questions.	"It was great to get a live response to questions instead of looking through discussion boards and sending emails". "[Tutor] was excellent and had time to answer all the questions put to her".
Blended learning	Positive feedback was received on the inclusion of a range of learning materials and approaches used in the classrooms.	"She [tutor] made the tute interesting by adding polls and video clips to watch, I feel I learnt a lot from this form of learning". "I was able to learn better as it was not only visual but audible as well. This helped me remember most of the content that was taught". "Creative, interactive and fun".
Social engagement	The importance of social interaction with other students was clear in the feedback. One student found the interaction reduced her ability to focus on the learning material and a second disliked social interaction during class time.	"[The interactive tutorials] made me feel part of the unit and closer to fellow classmates and the tutor". "Off campus study can be isolating at times and these tutorials were a great tool". "Sometimes I did find that others posting questions at times it was hard to concentrate on the tutorial".
Home access	The ability to access the classroom sessions from home was another area highlighted by students.	"It was better than a normal classroom environment in that I was able to be at home with my family at the same time".
Recordings	Recordings of classroom sessions were valued by students unable to access them in real-time	"As I was at work during each tutorial I was concerned I may miss my opportunity and information however by attending afterwards [recordings] all my questions were answered by other students. I was interested in what others had to say and enjoyed the content". "I did not participate or join in the live tutorials as I always had something on at that time, but I would watch it in my own time which was just as helpful as if I had participated at the allocated time".

| Navigation (user-friendliness) | Students commented in this section on the ease of access into and navigation within the site. One student had sound quality issues. | "After the first week it was very easy to log on to the tutorials. It was all set up and ready to go". "For sure, I am no good with computers but it was very easily set out!" |
| Suggestions for future improvements/changes | One student requested a change of time of the sessions. One called for stricter guidelines on social interaction during the class. | "Very good however with my young family at the time of the tutorial was not conducive to my learning as it was always bedtime for my kids". |

DISCUSSION

This was the first time an interactive classroom option had been offered in the School and the real-time participation of 53% UG and 79% PG, with a further 9% accessing recordings was encouraging. The high representation of non-traditional students is indicative of the popularity of nursing with these students (Donaldson et al 2010), the absence of Aboriginal and Torres Strait Islander students reflecting the wider inequity of their representation in Australian Higher Education (DEEWR 2008). The importance of home access to online study was illustrated in the qualitative findings. Students unable to participate in real-time classrooms cited family and employment commitments, such barriers similarly identified by non-traditional students in previous Australian research (James et al 2010).

The majority of students participating in classrooms in real-time did so actively, something not possible with traditional online delivery. Interaction with tutors, learning activities and materials was highly valued. Teaching and learning methods that enhance this academic engagement provide increased student satisfaction, effective learning and retention (Tinto 2012; Kuh et al 2008) making the interactive nature of the classrooms a valuable feature. Although recorded sessions cannot provide active participation opportunities, the provision was appreciated by students as a useful enhancement to learning. Such provision therefore ensures learning can be undertaken at a convenient time, place and pace, found to be valuable for online students (Kenny 2002) with students able to play and revisit sessions as required.

The enjoyment of social interaction with peers before and after weekly sessions was apparent, and the relevance of this in promoting learning cannot be overemphasised, and is well recognised (Rovai 2002) as is the development of social engagement in supporting retention (Tinto 2012). The classrooms promoted an inclusive and shared learning environment, with classrooms described as non-intimidating and welcoming. No students identified a lack of confidence as a barrier to active participation. The inclusion of clear guidelines around appropriate times for social chat may be merited however.

The importance of social presence generated by peer interaction in the mitigation of some unhelpful features of online learning was demonstrated in this study. The isolating nature of traditional online learning, known to influence attrition (Garrison and Cleveland-Innes 2005) was raised in the qualitative findings.

Of further value was the blending of materials and delivery methods, found to increase the fun and interaction in learning. Previous studies with non-traditional students have demonstrated a blended approach supports learning by appealing to the diverse learning styles (Bollinger and Supanakorn 2011; Kraetzig and Arbuthnott 2006).

A user-friendly environment is an important consideration when developing online learning approaches. Computer literacy varies and cannot be assumed, with one study finding this to be an underdeveloped skill in mature-age nurse students (Moule et al 2010). The early classroom navigation support provided in this project can aid student retention and improve satisfaction with online units (Gilmore and Lyons 2012) and findings

demonstrated high ease of navigation of classrooms after a few initial difficulties. Only three students cited poor Information Technology access or sound problems as barriers to participation in classrooms. Caution is required with these findings however, due to the low response rate of non-participating students in the survey.

The high percentage of students indicating interactive classrooms should be adopted in other units further reinforces the positive regard students had for the interactive classroom approach.

Limitations

The high survey response rate of students who participated in the classrooms supports the confidence in the trustworthiness of the findings around learning experiences and levels of active participation. Caution needs to be taken however with the survey findings around reasons for non-participation in real-time due to the low survey response rate from this group. This pilot study was conducted across two programs within a single University and with a relatively small sample size, thus reducing the generalisability of the findings to other higher education programs. The high representation of non-traditional students in the sample however makes the findings particularly relevant to courses with a similar student demographic across nursing and non-nursing.

CONCLUSION

The integration of interactive classrooms in this study was a valued addition to traditional methods of online learning for participating students. Classrooms were user-friendly and the inclusion of blended learning materials and teaching methods valued. High levels of academic and social engagement, important to student satisfaction, effective learning and retention were encouraging. The researchers have begun to roll out these interactive classrooms in other online units across the School.

RECOMMENDATIONS

In recognition of the growing cohort of non-traditional students in nursing today, and the predicted workforce shortfall, nurse educators must develop new approaches to enhance the online learning experience integrating best practice in adult learning. Interactive classrooms provide essential elements of this best practice.

REFERENCES

Ali, N.S., Hodson-Carlton, K., and Ryan, M. 2004. Students' perceptions of online learning. Implications for teaching. *Nurse Educator*, 29(3):111-115.

Allen, I.E. and Seaman, J. 2011. Going the distance: Online education in the United States. Babson Survey Research Group: Wellesley.

Australian Council for Educational Research. 2008. Attracting, engaging and retaining: New conversations about learning. Australian Council for Education Research: Victoria.

Birch, D. and Sankey, M.D. 2008. Drivers for and obstacles to the development of interactive multimodal technology-mediated distance higher education courses. *International Journal of Education and Development* using ICT, 4(1):66-79.

Bollinger, D.U. and Supanakorn, S. 2011. Learning styles and student perceptions of the use of interactive online tutorials. *British Journal of Educational Technology*, 42(3):470-481. doi: 10.1186/1472-6920-13-33 (accessed 22.03.14).

Bradley Committee, 2008. Review of Australian Higher Education Final Report. Canberra: Commonwealth of Australia.

Buerhaus, P.I., Staiger, D.O. and Auerbach, D. I. 2008. The future of the nursing workforce in the United States. Data, trends and implications. Boston: Jones and Bartlett.

Casuso-Holgado, M.J., Cuesta-Vargas, A.I., Moreno-Morales, N., Labajos-Manzanares, M.T., Barón-López, F. J. and Vega- Cuesta, M. 2013. The association between academic engagement and achievement in health science students. *BMC Medical Education*, 13:33.

Dante, A., Valoppi, G., Siani, L. and Palese, A. 2011. Factors associated with nursing students' academic success or failure: A retrospective Italian multicenter study. *Nurse Education Today*, 31:59-64. doi: 10.1016/jnedt.2010.03.016 (accessed 24.03.14).

Department of Education, Employment and Workplace Relations. 2008. Students: Selected Higher Education Statistics, Nursing students. Centre for the Study of Higher Education University of Melbourne: Victoria.

Department of Education, Employment and Workplace Relations. 2010. Summary of the 2009 Higher Education Student Statistics. Centre for the Study of Higher Education University of Melbourne: Victoria.

Donaldson, J.H., McCallum, J. and Lafferty, P. 2010. Can we predict successful completion of the common foundation programme at interview? *Nurse Education Today*, 30:649–656. doi:10.1016/j.nedt.2009.12.019 (accessed 24.03.14).

Duffy, P. and Bruns, A. 2006. The use of blogs, wikis and RSS in education: A conversation of possibilities. Conference: Online learning and teaching conference: Brisbane.

Garrison, R. and Cleveland- Innes, M. 2005. Facilitating Cognitive Presence.

In Online Learning: Interaction Is Not Enough. *The American Journal of Distance Education*, 19(3):133–148.

Gilmore, M. and Lyons, E, M. 2012. Nursing 911: An orientation program to improve retention of online RN-BSN students. Nursing Education Perspectives, 33(1), 45-47.Glogowska, M., Young, P. and Lockyer, L., 2007. Should I go or should I stay? A study of factors influencing students' decisions on early leaving. Active Learning in Higher Education, 8(63):63-77. doi: 10.1177/1469787407074115 (accessed 24.03.14).

Glossop, C., 2002. Student nurse attrition: use of an exit- interview procedure to determine students' leaving reasons. *Nurse Education Today*, 22:375-386. doi: 10.1054/nedt.2001.0724 (accessed 19.02.14).

Health Workforce Australia. 2012. Health workforce 2025 doctors, nurses and midwives- volume 1. Health Workforce Australia: Adelaide.

James, R., Krause, K.L. and Jennings, C., 2010. The First Year Experience in Australian Universities: Findings from 1994 to 2009. Centre for the Study of Higher Education: Melbourne.

Jeffreys, M.R. 2012. Nursing student retention, understanding the process and making a difference. (2nd edn.). New York: Springer Publishing Company.

Kenny, A. 2002. Online learning: enhancing nurse education? *Journal of Advanced Nursing* 38(2):127–135.

Kraetzig, G.P. and Arbuthnott, K.D. 2006. Perceptual learning style and learning proficiency: A test of the hypothesis. *Journal of Educational Psychology*, 98(1):238-246.

Kuh, G.D., Cruce, T.M, Shoup, R, Kinzie, J. and, Gonyea, R.M. 2008. Unmasking the effects of student engagement on first year college grades and persistence. *Journal of Higher Education*, 79(5):540-563.

Moreno, R. and Mayer, R. 2007. Interactive multimodal learning environments. *Educational Psychology Review*, 19:309-326.

Moule, P., Ward, R. and Lockyer, L. 2010. Nursing and healthcare students' experiences and use of e-learning in higher education. *Journal of Advanced Nursing*, 66(12):2785-2795. doi: 10.1111/j.1365-2648.2010.05453.x (accessed 12.05.14).

Pryjmachuk, S., Easton, K. and Littlewood, A. 2009. Nurse education: Factors associated with attrition. *Journal of Advanced Nursing*, 65(1):149-160. doi: 10.1111/j.1365-2648.2008.04852.x (accessed 03.04.14).

Rounds, L.R. and Rappaport, B.A. 2008. The successful use of problem –based learning in an online nurse practitioner course. *Nursing Education Perspectives*, 29(1), 12-16.

Rovai, A.P. 2002. Sense of community, perceived cognitive learning and persistence in asynchronous learning networks. The Internet and Higher Education, 5:319-332.

Royal College of Nursing. 2011. RCN Labour market review. A decisive decade. The UK nursing labour market review 2011. RCN: England.

Simpson, O. 2004. The impact on retention of interventions to support distance learning students. *Open Learning*, 19(1):80-95.

Tinto, V. 2012. Completing college, rethinking institutional action. University of Chicago Press: Chicago.

A Nurse Communication Manager reduces the number of non-relevant contacts

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ABSTRACT

Objective
The aim of this study was to reduce interruptions in nursing practice by exploring the effects on the number of non-relevant contacts received by the nursing staff after implementation of a Nurse Communication Manager.

Design
The study was designed as a pre/post interventional study. All contacts to the nursing staff, either by telephone or in person, were registered 14 days before intervention and 14 days after intervention.

Setting
The study was set in a department of surgery.

Subjects
The subjects were contacts either in person or by telephone aimed at nurses and nurse assistants in the surgical department.

Interventions
During the daytime a Nurse Communication Manager handled all incoming contacts irrespective of whether they were in person or by telephone. When the Nurse Communication Manager was not available and during the evening, night and weekends, telephone contacts were managed by an electronic Call Centre guiding the call to the care teams.

Main outcome measure(s)
The main outcome measures were the number of non-relevant contacts aimed at the nursing staff.

Results
Results showed a significant reduction in non-relevant contacts to the nursing staff from a mean of 80 contacts per day (SD 43) to a mean of 18 contacts per day (SD 7), p<0.01.

Conclusion
Implementation of a Nurse Communication Manager (NCM) reduced the number of non-relevant contacts. Reduction of non-relevant contacts is important for nurses in the clinical setting as non-relevant contacts may be perceived as interruptive. When nurses do not have to spend time responding to non-relevant contacts, they have more time to perform direct patient care.

INTRODUCTION

The nursing staff in the department of surgery felt they were often interrupted by tasks not related to the patients in their care. The nurses felt the many interruptions did not leave enough time for them to participate in direct care of their patients. For several years, worldwide attempts have been made by redesigning and streamlining the way nurses manage their working day, to release time for nurses to participate more in direct care of patients (Wilson 2009). Different models for nursing aim at reducing the amount of time that nurses spend on administrative tasks (Burston et al 2011; Inde 2013). Other researchers have argued for reducing activities that interrupt nurses in their work (Sørensen and Brahe 2014).

The aim of this study was to reduce the number of interruptions by external contacts in nursing practice. The study explored the effects of implementation of a Nurse Communication Manager (NCM) in a department of surgery in a university hospital in the Capital Region of Denmark.

A higher proportion of hours spent by nurses in the clinical care of patients has been reported to improve patient outcome, and reduce harmful events, hospital related complications, and length of stay (Needleman et al 2002). It has been argued that fewer nurses, increased workload, and an unstable nursing environment have been associated with negative patient outcomes, especially in general medical/surgical units (Duffield et al 2011). A Danish study found that nurses spent 32% of their time in the clinical practice in direct contact with their patients (Holm-Petersen et al 2006). An Australian study pointed at similar results, suggesting a general trend towards more administrative work, documentation, and multi-tasking as an integral part of professionals' work (Westbrook et al 2011). In the United Kingdom (UK), "The Productive Ward – Releasing Time to Care" was implemented as a nursing management system offering a systematic way of delivering high quality care to patients (Burston et al 2011; Wilson 2009), leading to an increase of 20% in the time that nurses spent in direct care of patients (Wilson 2009). The model of Patient Focused Care was the basis for the development of the Swedish program for caring called Patient Closer Care (PCC) (Inde 2013). The aim of the PCC-program was to increase focus on patients, and enable the nurses to have a greater role in the direct care of patients. The PCC-program covered several new activities: the central nurses' office was closed down and small working areas were established, strategically placed in the ward and close to the patients. Nursing staff changed their way of performing nursing to cooperation in care pairs with shared responsibility for planning, prioritising, and performing direct care of small groups of patients, in contrast to nurses and nurse assistants working apart with different tasks; nurses often performing administrative tasks rather than direct patient care. Furthermore, administrative tasks were transferred to a coordinator, who amongst other tasks handled all incoming contacts. In Sweden the PCC-program was evaluated positively by nurses working within this new framework for nursing (Inde 2013; Kjörnsberg et al 2010). The issue of interruptions has been explored in several studies (Berg et al 2013; Hopkinson and Jennings 2013; Sørensen and Brahe 2014). However, although the nurses felt disrupted, it was impossible for them to reject incoming contacts, as they could not tell whether it would be a relevant contact or not. As such there is dilemma between distinguishing when an interruption must be handled straight away, be postponed or avoided; a characteristic of the working conditions tied to the nursing profession (Sørensen and Hall 2011). Non-relevant contacts might contribute to a feeling of interruptions among the nursing staff, but to the knowledge of the authors´ the issue has not been explored.

Elements of the PCC-program had been implemented in some of the wards in the department of surgery but not the full program. In order to fulfil the PCC program in the ward and to address the issue of interruptions in nursing practice and releasing time for nurses to perform more direct patient care a planned interventional study exploring the effect of implementing a NCM was conducted. The hypothesis was the NCM would be

able to relieve nurses from external inquiries that would be deemed as interruptive. Additionally, the NCM was expected to guide patients, relatives, or professional collaborators at the initial contact with the ward in order to facilitate a direct process of communication.

METHOD/METHODOLOGY

The study was designed as a pre/post interventional study, testing the effect on the number of contacts in total and specifically on non-relevant contacts when implementing an NCM. The NCM handled all incoming contacts irrespective of whether they were in person or by telephone in a surgical ward. Additionally, all telephone contacts during the evening, night and weekend shifts were managed and guided towards the specific care team by an electronic call centre.

The term *relevant contact* was defined as a contact that was related to a specific query regarding a specific patient who was being cared for/known by the specific nurse, nurse assistant, or student nurse. The term *non-relevant contact* was defined as a contact regarding a patient not known to or who was not cared for by the specific nurse, nurse assistant or student nurse that received the contact.

Personal contacts from patients and relatives already in the ward were not registered in the survey, as they would always be welcome to ask the nursing staff for help. Professional contacts from colleagues within the ward were also not registered, as these types of contact were considered necessary for developing a good and confident learning/teaching nursing environment, and should/would not be reduced by implementing the NCM. The NCM role was to focus on answering external contacts, either in person or by telephone, and directing the inquiry to the specific nursing staff or handling the request without interrupting the nursing staff at all.

Setting
The study was carried out in a 50 bed surgical ward in the Department of Gastroenterology at Herlev Hospital, University of Copenhagen, Denmark.

Primary outcome
The primary outcome was the number of non-relevant contacts as perceived by nurses, nurse assistants, secretaries, or students on the ward.

Secondary outcome
The secondary outcome was a breakdown in time intervals of all incoming contacts, type of contacts, and number of contacts handled by the communication manager.

Sample size
In the literature it has been suggested that recruitment of a person with a similar function area might reduce the total number of contacts by 50% (Västerbottens läns landsting 2009), and therefore aimed at a minimal relevant difference of 50%. In order to identify the actual number of contacts in the ward, a mock-registration was carried out. This revealed the total number of contacts would be between 150 and 200 per day; however, the number of non-relevant contacts was unknown. Therefore, the minimal relevant difference was set at 50%, and in a 2 sided test, type I error at 5% and type II error at 10% the needed number of days registering contacts would be 9 days (IBM Sample power). However, as the sample size estimation was based on uncertain data, and as there were no data describing means and standard deviations, it was decided to register contacts for 14 days before and 14 days after implementation.

Standard handling of contacts
The ward was characterised by many incoming contacts covering enquiries related to general issues as well as questions related to specialised and complex problems. As such, the incoming personal contacts varied,

and covered patients waiting to be admitted to the ward, former patients, relatives inquiring about their loved ones and health professionals needing further information about patients.

Furthermore, the telephone often kept ringing, and if it was not answered within a short period of time the hospital´s central telephone system redirected the phone call to another telephone in the ward. However, as the nursing staff was engaged in the direct care of patients they could not answer the phone without having to leave the patient. When a secretary answered the telephone, most of the incoming callers were redirected to the nurses' offices, as the secretary could not handle the request.

Interventions

The NCM handled all incoming contacts, both personal contacts and telephone contacts, during daytime from Monday to Friday. The nursing staffs was provided with portable phones and the ward was divided into specific areas making it possible for the NCM to get in touch with nursing staff caring for a certain patient or group of patients. In order to direct the telephone calls to the specific nursing staff when the NCM was not present an electronic call centre was established within the ward. This call centre handled all telephone contacts during evenings and nights, and directed the phone contacts directly to the relevant nursing staff by offering different choices. The nursing staff on duty would handle any personal contacts outside daytime on weekdays.

Measurements pre-intervention

The number of contacts was measured, as well as the professional background of the employee, relevance of contacts, and the type of contact (telephone or in person, and professional or non-professional) and time of day before the implementation of the NCM. The pre-intervention registration was done over a period of two weeks from 7am to 11pm and included all contacts irrespective of whether they were in person or by telephone. The registration was done on a pre-specified form.

In order to ensure consistency in the way relevant and non-relevant contacts were assessed, the research group and the nurses and nurse assistants in consensus identified characteristics describing both types of contacts. During the intervention the number of contacts being handled by the NCM was monitored from 8 am to 4 pm. After implementation of the NCM the measurements from before implementation of the intervention were repeated

Data Analysis

Data analysis was based on descriptive statistics and parametric tests using IBM SPSS statistics version 20 and Microsoft Office Excel 2007. Descriptive data were reported as mean (SD). Comparisons between groups were made using independent t-tests. A p-value less than 0.05 were considered statistically significant, and confidence intervals were set with 95% limits.

The study was approved by the Danish Data Protection Agency before initiation of the study. The study was exempt from approval by the Danish Ethical Committee; the study did not include any form of biomedical intervention.

FINDINGS

The study was carried out over a six month period in 2013. Mock registration in January, pre-intervention registration was done during a two week period in January-February. The NCM was implemented after the pre-intervention registration and the post-intervention registration was carried out three months later in May and June 2013.

Results of the pre-intervention monitoring period showed a total of 2,643 contacts, and 45% of these (1,210) were non-relevant contacts (table 1).

Table 1: Contacts before and after intervention. Total values are based on periods of 14 days, and presenting mean (SD) number of contacts per day, and reduction in percent based on mean values. * t-test.

	Before	Mean (SD)	After	Mean (SD)	Reduction in percent	*p*-value
Contacts – total	2643	176 (100)	1497	99 (36)	-44%	0.01
Relevant	1428	95 (60)	1186	78 (35)	-18%	0.37
Non-relevant	1210	80 (43)	280	18 (7)	-78%	<0.01

The results showed a significant reduction in non-relevant contacts to the staff from a mean of 80 contacts per day (SD 43) to a mean of 18 contacts per day (SD 7) (independent t-test, p=<0.001, CI for difference in mean [37.54-86.45]), a reduction of 78% (table 1), although with some day to day variation (figure 1).

The results of the post-intervention monitoring period showed a total of 1,497 contacts which was a significant reduction of 44% (p=0.01, CI for difference in mean [18.45-134.34]). Out of these, 280 contacts (19%) were considered non-relevant (table 1).

Figure 1: Number of non-relevant contacts before and after implementation of the Nurse Communication Manager
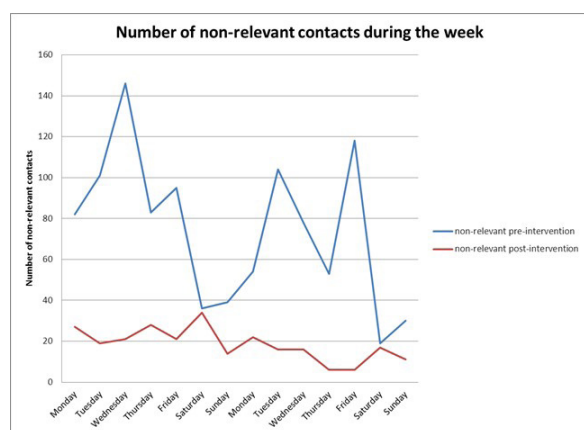
Figure 2: Number of incoming external contacts (both by telephone and in person) and timing of the contact
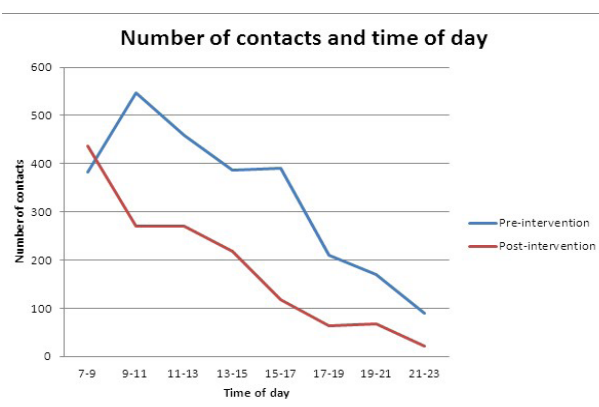
Moreover, when looking at the type of contact the number of personal contacts was reduced by 54% (table 1). Whereas the telephone contacts from non-professionals were reduced by 57% (table 2); the telephone contacts from professionals were reduced by 7% (table 2).

Table 2: Personal and telephone contacts (36 cases missed registration of contact type).

		Before intervention	After intervention	Reduction in percent
Personal contacts	Professional	835	382	-54%
	Non-professional	819	375	-54%
Telephone contacts	Professional	572	531	-7%
	Non-professional	412	178	-57%

Adding to this the number of contacts were high in the morning and decreased during the evening (figure 2).

This was matched by the number of contacts handled by the NCM with a total of 66 (mean, SD 23) contacts handled per day. Additionally, the number of contacts handled by telephone was higher than the number handled in person (mean 39 (SD 12), mean 27 (12), respectively). The call centre handled a total of 1078 calls during the two week post-intervention registration.

On a subjective basis, the nurses, the nurse assistants, as well as collaborators reported spontaneously, that the work environment was more pleasant, less noisy, and less disrupted. Patients and relatives remarked that it was easy to get access to the information they needed. When elaborating on this, the patients and relatives explained they would either be informed by the NCM or they would be transferred directly to the specific nurse caring for the patient.

DISCUSSION

Implementation of the NCM reduced the number of non-relevant contacts, and lowered the total number of contacts. When exploring the differences between the different types of contacts the results showed that the number of personal and telephone contacts from non-professionals were reduced by more than 50%. A similar reduction was found in the group of professional and personal contacts, but not in the telephone contacts from professionals, as contacts from the NCM to the nursing staff regarding a specific patient were regarded as relevant contacts. Furthermore, there was a subjective positive experience tied to the implementation of the NCM.

Interruptions have often been associated with reduction of quality of care, medical errors, negative work flow, and reduced patient safety (Berg et al 2013; Sørensen and Brahe 2014; Westbrook et al 2011; Kalisch and Aebersold 2010). This study did not explore the potential differences between non-relevant contacts, and interruptions and distractions, although this was suggested by a study investigating the complexity tied to interruptions in nurses' work (Hopkinson and Jennings 2013). However, the perception of an activity as being non-relevant should obviously be compared to an interruption or a distraction. A study presented the term communication multitasking where the subject did not initiate the communication events (Spencer et al 2004). These results supported the results of this study, as they found a high number of communication events, defined as a set of messages between one or more persons through any communication channel, were tied to a risk of communication overload with the potential of creating clinical errors (Spencer et al 2004). The present study monitored the number of contacts, showing a reduction in the total number of contacts and this was primarily in the number of non-relevant contacts.

As such, the aspiration was that the NCM would make it possible for the nursing staff to concentrate on working in direct patient care as patient satisfaction with nursing care was highly dependent on responsiveness and reliability of the nursing staff (Lumby and England 2000). Furthermore, a recent report on the implementation of a nurse flow master in an acute ward (Christiansen 2012) pointed at similar benefits for the professional collaborators. These factors were primarily reliant on adequate staff numbers, which supported the argument on releasing time for care if nurses and nurse assistants were not interrupted by non-relevant contacts.

When looking at the time of day it was not surprising that the number of contacts was higher in the morning at the beginning of the day shift. This is the time of day when the hospital wakes up - the surgeons start operating, other professional and clinical co-operators from other departments start planning their day and need to coordinate patient courses, relatives call the hospital to ask about their loved ones. This increase was countered when the NCM had been implemented, as the working hours of the NCM started in the morning. This might add to the positive subjective statements of the working environment being quieter, specifically as phones were not constantly ringing after the implementation of the NCM. There might even be a motivational factor as a contact perceived as relevant would be more important when the nurses were not interrupted by non-relevant contacts to the same extent as before the implementation of the NCM.

Limitations

The study focused exclusively on external personal and telephone contacts, and did not explore the possible effects of changing the working conditions of the nurses and nurse assistants on the ward. The study did not explore the number of interruptions from relatives, other professionals and colleagues nor did it explore to which extent these interruptions were perceived as disruptive. Therefore, the positive effects related to releasing time to patient care should be explored further in studies exploring the patient perspective. However, the authors do believe that the results are based on a valid method with a high degree of reliability. All data were gathered in real-time and not depending on retrospective methods, which could have hampered the quality. Furthermore, the design of the study was pragmatic, as the testing and implementation of the NCM was done in a real-life setting, thereby covering any contextual aspects occurring in the clinical setting of a busy surgical department.

CONCLUSION

Based on these findings the authors may conclude that implementation of a Nurse Communication Manager in a department of surgery significantly reduced the number of non-relevant contacts to nursing staff. The results of this study should be further explored in studies investigating issues related to patient safety and medication errors as a reduction in unnecessary interruptions might give a better working environment with a potential effect on patient safety. The Nurse Communication Manager took some of the workload away from the regular nursing staff, but it is not known if the net effect of this would give more time for direct patient care. This should therefore be explored further.

The reduction of non-relevant contacts is important for nurses in the clinical setting as they may be perceived as interruptive. The avoidance of interruptions in the nurses' everyday work in a surgical department is central and may reduce errors. When nurses do not have to spend their time answering non-relevant contacts they are given more time to care for patients. The implementation of a Nurse Communication Manager may support other organisational initiatives aimed at reducing interruption and increasing nurses´ time spent in direct care.

REFERENCES

Berg, L.M., Källberg, A.S., Göransson, K.E., Östergren, J., Florin, J. and Ehrenberg, A. 2013. Interruptions in emergency department work: an observational and interview study. *BMJ Quality & Safety,* 22(8):656-663

Burston, S., Chaboyer, W., Wallis, M. and Stanfield, J. 2011. A discussion of approaches to transforming care: contemporary strategies to improve patient safety. *Journal of Advanced Nursing,* 67(11):2488–2495.

Christiansen, S.L. 2012. Flowmaster formindsker forstyrrelser [A nurse flow master reduces interruptions]. Sygeplejersken, 8, 40–41. http://www.dsr.dk/Sygeplejersken/Sider/SY-2012-08-40-1-Flowmaster-formindsker-forstyrrelser.aspx (accessed 15.10.14).

Duffield, C., Diers, D., O'Brien-Pallas, L., Aisbett, C., Roche, M., King, M. and Aisbett, K. 2011. Nursing staffing, nursing workload, the work environment and patient outcomes. *Applied Nursing Research*, 24(4):244–255.

Holm-Petersen, C., Asmussen, M. and Willemann, M.2006. *Sygeplejerskers fagidentitet og arbejdsopgaver på medicinske afdelinger* [The professional identity and job functions in medical wards]. DSI. Institut for Sundhedsvæsen, Copenhagen. (Danish Institute of Health Care). http://www.kora.dk/media/763539/dsi-1284.pdf (accessed 15.10.14).

Hopkinson, S.G. and Jennings, B.M. 2013. Interruptions during nurses' work: A state of the science review. *Research in Nursing & Health,* 36(1):38–53.

Inde, M. 2013. Ännu närmre – för en god og säker patientnärmre vård. Even closer – for good and safe Patient Centered Care. (Authors translation from Swedish) (2nd edn). Landstinget I Värmland 2011. CityTryk I Karlstad AB: Karlstad, Sweden.

Kalisch, B.J. and Aebersold, M. 2010. Interruptions and multitasking in nursing care. Joint Commission journal on quality and patient safety / Joint Commission Resources, 36(3):126-132.

Kjörnsberg, A., Karlsson, L. and Babra, A. 2010. Registered nurses' opinions about patient focused care. *Australian Journal of Advanced Nursing*, 28(1):35–44.

Lumby, J. and England, K. 2000. Patient satisfaction with nursing care in a colorectal surgical population. *International Journal of Nursing Practice*, 6(3):140–145.

Needleman, J., Buerhaus, P., Mattke, S., Stewart, M. and Zelevinsky, K. 2002. Nurse-staffing levels and the quality of care in hospitals. *The New England Journal of Medicine*, 346(22):1715–1722.

Spencer, R., Coiera, E. and Logan, P. 2004. Variation in communication loads on clinical staff in the emergency department. *Annals of Emergency Medicine*, 44(3):268–273.

Soerensen, E.E. and Brahe, L. 2014. Interruptions in clinical nursing practice. *Journal of Clinical Nursing*, 23(9-10):1274-1282.

Soerensen, E.E. and Hall, E.O.C. 2011. Seeing the big picture in nursing: a source of human and professional pride. *Journal of Advanced Nursing*, 67(10): 2284–2291.

Västerbottens läns landsting.2009. Patientnärmre vård – Framtidens vård. En rapport från Memeologen om ett systematiskt förändringsarbete med fokus på mötet [Patient Closer Care - the care of the future. A rapport on the systematic development with focus on the meeting, Västerbottens läns landsting utvecklingsenheten. http://oldwww.liv.se/sidkat/4570/PNV%20rapport%20fr%C3%A5n%20 Memeologen.pdf (accessed 15.10.14).

Westbrook, J.I., Duffield, C., Li, L. and Creswick, N.J. 2011. How much time do nurses have for patients? A longitudinal study quantifying hospital nurses' patterns of task time distribution and interactions with health professionals. *BMC Health Services Research*, 11:1-12.

Wilson, G. 2009. Implementation of Releasing Time to Care - the productive ward. *Journal of Nursing Management*, 17(5):647–654.

Advanced skills for enrolled nurses: a developing classification

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KEY WORDS

enrolled nurse; advanced skill; industrial classification; role differentiation; Australia.

ABSTRACT

Objective
This paper is a report of a literature review designed to identify strategies central to the implementation of the industrial classification of enrolled nurses (second level nurse) with advanced skills within Australia.

Setting
Australian healthcare and aged care organisations that employ enrolled nurses.

Primary Argument
Designing a clearly defined enrolled nurse with advanced skills role within an industrial classification, requires incorporation of advanced competencies, scope of practice articulation and specifically targeted organisational policies and procedures. These three areas are fundamental to successful role implementation.

Conclusion
There is limited discussion in the literature on strategies to ensure effective implementation of the enrolled nurse with advanced skills role. In addition minimal research has been reported on the effectiveness of these roles in enhancing patient care and increasing workforce flexibility and efficiency. Further research and evaluation of the enrolled nurse with advanced skills is urgently required.

INTRODUCTION

An enrolled nursing industrial classification for advanced skills was introduced into a number of jurisdictions across Australia to increase the responsiveness of the workforce to contemporary health care challenges. This initiative represented an opportunity to respond to the changing health care scene by providing a more structured enrolled nursing model of care that embraces advanced skills and knowledge within a collaborative nursing framework (Milson-Hawke and Higgins 2003). Introducing an enrolled nurse with advanced skills within revised models of care has the potential to increase the capacity of the health workforce and therefore to meet growing demand in areas of strategic relevance to workforce development and clinical care.

This paper presents a comprehensive review of the literature designed to identify successful strategies for the implementation of the industrial classification of enrolled nurse (second level nurse) advanced skills.

BACKGROUND

The enrolled nurse with advanced skills builds on the role of the enrolled nurse. The enrolled nurse is known in some countries as the 'second level nurse' or 'division two nurse'. For the purpose of this paper the nomenclature enrolled nurse (EN) will be used. Internationally the EN position has changed markedly over the years. In New Zealand and England the EN position was withdrawn from the nursing workforce for a period of time but has re-emerged. However, in Canada, the United States of America and Australia, the role has continued to be part of the nursing workforce (Blay and Donoghue 2007; Australian Nursing Federation 2005; Heartfield and Gibson 2005). In Australia the training of ENs occurs in the vocational sector and is currently at Diploma level (Australian Nursing and Midwifery Accreditation Council 2009). There are advanced practice postgraduate courses that support the development of the EN with advanced skills. These courses enable the development of EN skills and knowledge in specific areas of nursing practice, including assessment, care and clinical management.

The last fifteen years has seen most states and territories in Australia recognise an advanced EN industrial classification. In 1999, New South Wales introduced the first advanced EN classification within Australia. This was followed by other jurisdictions including the Northern Territory, Western Australia and Queensland (Australian Nursing Federation, 2005). More recently South Australia has introduced an advanced EN classification (Government of South Australia SA Health 2011).

The Australian Nursing Federation in 2005 noted that in the different states of Australia, advanced practice classifications had differing interpretations and titles such as Special Grade and Exemplary Practice, EN (Advanced Practice N1). Victoria has three levels of enrolled nurse classification, with level 3 relating to advanced enrolled nurse practice (State Government of Victoria - Department of Health, 2012). South Australia, in 2011, added a different title to the list of advanced EN classifications that of Advanced Skills Enrolled Nurse (ASEN).

To be effective the role of the enrolled nurse with advanced skills must be clearly differentiated from both the EN and registered nurse (RN) role. In Australia the RN is prepared at bachelor degree level within the university sector. This level of education enables the RN to demonstrate a higher level of accountability for patient care through higher level critical analysis and decision making. The EN and the enrolled nurse with advanced skills work under the supervision of the RN. They are responsible for their actions and are accountable for all functions delegated to them by the RN (Nursing and Midwifery Board of Australia, 2002). Jacob et al (2013) suggest that to date, current approaches to adequately delineating EN and RN roles have failed. This concern was identified previously by Chaboyer et al (2008) who noted many similarities between the roles of EN and RN. Nankervis et al (2008) also noted significant examples of role confusion due to the perceived

similarities between the two classifications. Jacob et al (2012) suggested that reducing role confusion and ambiguity between EN and RN is essential if healthcare services are to effectively utilise the knowledge and skills of the existing workforce. Therefore clear role delineation is necessary for the EN with advanced skills to prevent further role confusion and to be effective in enhancing healthcare.

METHOD

A comprehensive search of peer reviewed literature using Scopus, CINAHL and Informat was undertaken. A search of the websites of Australian Departments of Health and the Australian Nursing and Midwifery Federation (ANMF) occurred to locate grey literature. A snowball approach was used to identify further references from previously sourced articles and policy documents. As a literature based study this work did not require approval by a human research ethics committee.

Findings

No peer reviewed studies that addressed the industrial classification of EN with advanced skills were identified. The review of the grey literature however, suggested a coordinated, multi-strategy approach was necessary for the design and implementation of an effective EN with advanced skills role. From the literature three themes emerged. These themes were; competency domains for the enrolled nurse with advanced skills; scope of practice for the enrolled nurse with advanced skills; and organisational policies and procedures to define specific work requirements of the enrolled nurse with advanced skills.

Theme 1- Competency domains for enrolled nurses with advanced skills

The need for comprehensive competency domains was identified as the first theme in the literature. The use of competency domains was considered a central strategy to implementation of the EN with advanced skills.

The Australian Nursing Federation (2005) undertook a synthesis of information on advanced EN classifications across all Australian jurisdictions and identified broad competency standards for the EN with advanced skills. Advanced EN competencies covered professional development, provision of clinical care and management of self and others. They also include leadership, coordination, administration and management; as well as clinical skills, technical tasks, care delivery and clinical responsibilities (Australian Nursing Federation 2005). The competencies were broad by necessity to ensure they were relevant to diverse practice settings.

In South Australia further work was undertaken to revise and refine advanced EN competencies (Government of South Australia, SA Health 2011). Two key national documents Australian Nursing Federation (2005) and Australian Qualifications Framework (2011) informed advanced practice definitions and competency domains for Advanced Skills Enrolled Nurses (ASEN). The competencies were congruent with the AQF Advanced Diploma level to ensure employers that postgraduate qualifications met the correct level of ASEN responsibilities. The first two of the revised competency domains were very similar to the original ANF documentation and the other jurisdictions approaches.

The first competency domain (Government of South Australia SA Health 2011) was *Advanced skills and knowledge in client/patient assessment*. This competency domain identified the ASEN was able to contribute to client/patient assessment using advanced skills and knowledge to produce a holistic assessment and to determine the health status and nursing needs of a client/patient or group.

The second competency domain *Advanced skills and knowledge in the provision of care management* enabled the ASEN to contribute to care management and planning using their advanced skills and knowledge.

The third competency domain required *Advanced skills and knowledge in leadership responsibilities*. This domain was different to other Australian jurisdictions on advanced practice for ENs because of the increased emphasis on the ASEN as a clinical leader.

Advanced competencies were considered central to implementation of the EN with advanced skills and assist with enabling role clarity. Advanced scope of practice is the focus of the next theme.

Theme 2 - Advanced scope of practice for the enrolled nurse with advanced skills

Addressing contemporary scope of practice issues for the EN with advanced skills was the second theme evident in the literature.

Milson-Hawke and Higgins (2004) explored how advanced scope of practice for ENs developed in Australia. They were critical that ENs had determined over time their own scope of practice as they undertook or were delegated nursing activities beyond their level of preparation. Therefore, they were advancing their practice without formal recognition by the organisation they worked for or by the nursing profession.

Jacob et al (2013) explored scope of practice challenges for ENs. They warned that expansion of the ENs' scope of practice risked RN role overlap with further confusion between EN and RN roles. They also questioned the potential benefits to patient care of advanced EN roles given the lack of evidence to support this change.

The use of role specifications or job descriptions contributes to defining scope of practice. The health departments in New South Wales (New South Wales Government Health, 2014) and South Australia (Government of South Australia, SA Health, 2011) developed a specific job description template for health services to use when introducing the role into their clinical setting. This strategy was to ensure the role met health care service needs and to clarify the skill expectations of the advanced role (Government of South Australia, SA Health, 2011). South Australia also required the ASEN to demonstrate specialisation in a field of nursing practice, higher-level skills and knowledge, as well as a higher-level of delegation of clinical and non-clinical roles (Government of South Australia SA Health 2011).

Post enrolment educational preparation and years of experience consistently emerged as an important strategy to differentiate between the EN and the EN with advanced skills (Blay and Donoghue 2007; Australian Nursing Federation 2005; Milson-Hawke and Higgins 2004). The most recent industrial consideration required for entry into an EN with advanced skills role was stated in the Nursing and Midwifery SA Public Sector Enterprise Agreement (Government of South Australian 2013). This agreement required the EN to have three years full time equivalent experience in the relevant clinical area and hold an Advanced Diploma of Enrolled Nursing. Without an advanced diploma, five years of equivalent full time experience was required.

As well as clearly defining scope of practice organisational policies and procedures are necessary to support the introduction of advanced EN roles as discussed in the next theme.

Theme 3 - organisational policies and procedures to enhance the enrolled nurse with advanced skills

Nankervis et al (2008) explored how ENs with advanced skills should be introduced to rural healthcare services. They recommended the use of policies and procedures to enable a well-structured change management process that engaged and empowered all the different levels of nurses in the workplace. This suggestion, and the recommended process, could equally apply to non-rural health services.

DISCUSSION

For the EN with advanced skills industrial classifications to develop, advanced competencies need to be adopted, scope of practice including job specifications carefully defined and organisational policies and procedures designed to support the role in each organisation and worksite. To date insufficient research literature exists about the successful implementation of advanced EN roles and how they are best supported by organisations.

The concept of advanced practice is predominantly portrayed in the international literature as the domain

of registered nurses (Fagerstrom and Glasberg 2011; Por 2008; Mantzoukas and Watkinson 2006; Bryant-Lukosius and DiCenso 2004), particularly Nurse Practitioners and Clinical Nurse Specialists (Newhouse et al 2011). While it is difficult to articulate succinctly what constitutes advancing practice by defining qualities, attributes and domains (Por 2008) the challenge is to develop management strategies that enhance the clarity of the EN with advanced skills role at the local level.

Advanced competencies are necessary for EN positions with advanced skills because they assist in part to define scope of practice and inform the education sector on the curriculum design for professional development programs. Further, advanced competency domains for the contemporary EN with advanced skills address public need; clearly identify demand and expectations of the role; meet legislative requirements; and ensure consistency with other professional advanced competency standards, codes of ethics and conduct (Nursing and Midwifery Board Australia 2007; Bryant-Lukosius and DiCenso 2004). Alone however, competency standards for advanced EN practice are insufficient to comprehensively define the EN with advanced skills role. It is noted that with the recent review and updating of the national EN competency standards by the Nursing and Midwifery Board Australia (2015) the term 'competency standards' has been replaced with 'practice standards'. It may be time to review the previously developed advanced EN competencies in light of these changes to practice standards. This would ensure national consistency for the development of the advanced EN role.

To avoid role ambiguity, it is important that role responsibilities are provided in detail and are specific to the advanced EN role. Requiring position descriptions to be scrutinised by a nursing leadership team prior to filling the position provides an opportunity to clarify specifically what an EN with advanced skills will be able to do. For example, increased knowledge and understanding of how research applies to nursing practice, must relate to the EN role. Supporting team leadership roles through educating and providing mentorship and preceptorship could be restricted to students in enrolled nursing programs, other less experienced ENs, and care workers. ENs with advanced skills should only contribute to the performance appraisal of ENs and care workers and not staff in other roles. They could also assist with the clinical assessment of students in enrolled nursing programs but not other programs. The expectation of role modelling should also be restricted to ENs, enrolled nursing students and care assistants. ENs at the advanced level would also be expected to actively engage with their profession and health care services through input in organisational policy development, and quality improvement initiatives (Por 2008; Blay and Donoghue 2007; Australian Nursing Federation 2005; Milson-Hawke and Higgins 2004) and should have rationales linked to the EN role.

Any role specification for the EN with advanced skills must support the registered nurse/midwife in the areas of patient-centred care and the principles of delegation, decision making and supervision. These provisions remain in accordance with EN practice as defined by the regulating authority in Australia (Nursing and Midwifery Board Australia 2007). As the role, by definition, requires supervision the organisation should develop policies and procedures that clearly indicate the nature of the supervision required for this level of EN.

Successful implementation of advanced EN roles depends on all areas of nursing accepting the opportunities and challenges these roles offer. Leadership from nursing management and registered nurses within health units is necessary if the opportunities this classification offers to enhance models of care is to be realised.

An ongoing evaluation of the implementation of ENs with advanced skills roles across Australia will be important to the roles' sustainability into the future. Health Departments and the Australian Nursing and Midwifery Federation have information resources available to assist health care organisations across Australia to develop parameters around the advanced role, however further work will be required to refine these resources in the light of any evaluation findings. Future evaluation findings must be widely available so that health units can learn from the experiences of others.

CONCLUSION

In Australia the EN with advanced skills has emerged in a number of jurisdictions within Australia as an industrial classification. For the role to meet its full potential, it must be supported by advanced EN competencies or practice standards, framed within an appropriate scope of practice and supported by workplace and organisational policies and procedures. The role also offers potential benefits for client care and career advancement. However further research and/or evaluation of these roles will be necessary before judgements about the effectiveness of the role can be determined.

REFERENCES

Australian Nursing and Midwifery Accreditation Council. 2009. Enrolled Nurses: Standards and Criteria for the accreditation of nursing and midwifery courses leading to registration, enrolment, endorsement and authorisation in Australia –with evidence guide. Prepared by D. Ryan. http://www.anmac.org.au/sites/default/files/documents/ANMC%20Accreditation%20standards%20-%20Enrolled%20 Nurse.pdf (accessed 24.11.14).

Australian Nursing Federation. 2005. Competency standards for the advanced enrolled nurse. Edited A Adrian, Canberra. http://anmf. org.au/documents/reports/Competency_Standards_Advanced_EN.pdf (accessed 27.4.15).

Australian Qualifications Framework. 2011. Australian Qualifications Framework Council for the Ministerial Council for Tertiary Education and Employment (1st edn.) http://www.aqf.edu.au/AbouttheAQF/TheAQF/tabid/108/Default.aspx (accessed 20.08.12).

Blay, N. and Donoghue, J. 2007. Enrolled nurse skill extension: metropolitan myth or reality. *Australian Journal of Advanced Nursing,* 24(3):38-42.

Bryant-Lukosius, D. and DiCenso, A. 2004. A framework for the introduction and evaluation of advanced practice nursing roles, Nursing and Healthcare Management Policy. *Journal of Advanced Nursing,* 48(5):530-540.

Chaboyer, W., Wallis, M., Duffield, C., Courtney, M., Seaton, P., Holzhauser, K., Schluter, J. and Bost, N. 2008. A comparison of activities undertaken by enrolled and registered nurses on medical wards in Australia: An observational study. *International Journal of Nursing Studies,*.45(9):1274-1284.

Fagerstrom, L. and Glasberg, A.L. 2011. The first evaluation of the advanced practice nurse role in Finland-the perspective of nurse leaders. *Journal of Nursing Management,* 19(7):925-932.

Government of South Australia. 2013. Nursing and Midwifery (SA Public Sector) Enterprise Agreement 2013. Department of the Premier and Cabinet. Adelaide, South Australia.

Government of South Australia SA Health 2011. Advanced Skills Enrolled Nurses: Tool kit for implementation of the ASEN role in South Australia. Nursing and Midwifery Office. Government of South Australia. Adelaide.

Heartfield, M. and Gibson, T. 2005. Australian enrolled nurses have their say- Part 1 teamwork and recognition. *Contemporary Nurse*, 19(1-2), 115-125.

Jacob, E.R., Barnett, A., Selleck, K. and McKenna, L. 2013. Scope of practice for enrolled nurses: evolution and practice issues. *Contemporary Nurse*, 45(2):155-163.

Jacob, E.R., Selleck, K. and McKenna, L. 2012. Australian registered and enrolled nurses: Is there a difference? *International Journal of Nursing Practice,* 18(3):303-307.

Mantzoukas, S. and Watkinson, S. 2006. Review of advanced nursing practice: the international literature and developing the generic features. *Journal of Clinical Nursing,* 16(1):28-37.

Milson-Hawke, S. and Higgins, I. 2003. The scope of enrolled nurse practice: a review of the literature. *Contemporary Nurse*, 14(2):129-137.

Milson-Hawke, S. and Higgins, I. 2004. The scope of enrolled nurse practice: A grounded theory study. *Contemporary Nurse*, 17 (1-2), 44-62.

Nankervis, K., Kenny, A. and Bish, M. 2008. Enhancing scope of practice for the second level nurse: A change process to meet growing demand for rural health services. *Contemporary Nurse*, 29(2):159-173.

New South Wales Government Health. 2014. Policy directive – enrolled nurse – special grade. http://www0.health.nsw.gov.au/policies/pd/2014/PD2014_037.html (accessed 24.11.14).

Newhouse, R.P., Stainik-Hutt, J., Whaute, K.M., Johantgen, M., Bass, E.B., Zangaro, G., Wilson, R.F., Fountain, L., Steinwachs, D.M., Heindel, L. and Weiner, J.P. 2011. Advanced practice Nurse Outcomes 1990-2008: A systematic Review. *Nursing Economics*, Sept-Oct 29(5):230-251.

Nursing and Midwifery Board Australia. 2002. National competency standards for the enrolled nurse. Australian Nursing Council Inc. Canberra. http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Codes-Guidelines.aspx (accessed 01.08.12).

Nursing and Midwifery Board Australia. 2007. National framework for the development of decision-making tools for the practice of nursing and midwifery. Australian Nursing Council Inc. Canberra. http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Codes-Guidelines.aspx#decisionmakingframework (accessed 22.08.12).

Nursing and Midwifery Board Australia. 2015. Communique Meeting of the Nursing and Midwifery Board. February 2015. http://www.nursingmidwiferyboard.gov.au/News/Communiques-from-Board-meetings.aspx (accessed 27.04.15).

Por, J. 2008. A Critical engagement with the concept of advancing nursing practice. *Journal of Nursing Management,* 16(1):84-90.

State Government of Victoria - Department of Health. 2012. Nurses and midwives (Victorian Public Health Sector) single interest employers enterprise agreement 2012-2016. http://www.health.vic.gov.au/nursing/workforce/ir on (accessed 24.11.14).