

Building research capacity in the nursing workforce: the design and evaluation of the nurse researcher role

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ABSTRACT

Objectives

The Nurse Researcher Project (NRP) was initiated to support development of a nursing research and evidence based practice culture in Cancer Care Services (CCS) in a large tertiary hospital in Australia. The position was established and evaluated to inform future directions in the organisation.

Background

The demand for quality cancer care has been expanding over the past decades. Nurses are well placed to make an impact on improving health outcomes of people affected by cancer. At the same time, there is a robust body of literature documenting the barriers to undertaking and utilising research by and for nurses and nursing. A number of strategies have been implemented to address these barriers including a range of staff researcher positions but there is scant attention to evaluating the outcomes of these strategies. The role of nurse researcher has been documented in the literature with the aim to provide support to nurses in the clinical setting. There is, to date, little information in relation to the design, implementation and evaluation of this role.

Design

The Donabedian's model of program evaluation was used to implement and evaluate this initiative.

Methods

The 'NRP' outlined the steps needed to implement the nurse researcher role in a clinical setting. The steps involved the design of the role, planning for the support system for the role, and evaluation of outcomes of the role over two years.

Discussion

This paper proposes an innovative and feasible model to support clinical nursing research which would be relevant to a range of service areas.

Conclusion

Nurse researchers are able to play a crucial role in advancing nursing knowledge and facilitating evidence based practice, especially when placed to support a specialised team of nurses at a service level. This role can be implemented through appropriate planning of the position, building a support system and incorporating an evaluation plan.

INTRODUCTION

It is well recognised that the demand for cancer care is growing due to the increasing number of people affected by cancer and the effectiveness of cancer treatments. Data from the World Health Organization (2009) suggested that the number of new cancer cases is projected to increase from 11.3 million in 2007 to 15.5 million in 2030. This growing demand has presented a challenge for nursing services in relation to workload, workforce issues, and most importantly, the need to provide innovative and cost-effective nursing care. Cancer nurses play an important and unique role in responding to the needs of people affected by cancer throughout the continuum of care, from prevention to end of life care and bereavement support (Clinical Oncology Society 1996, Oncology Nursing Society 1996). It is important that cancer nurses are not only aware of the expectations imposed upon their specialty, but also support and contribute to improving and measuring nursing outcomes.

Cancer nursing is a dynamic entity (Yates 2001). Changes are inevitable and have presented a high demand for innovative nursing interventions in cancer nursing. Other than the growing population experiencing cancer, there are several factors contributing to the changes that occur in cancer nursing over time: (i) scientific and technological advancement in cancer care, (ii) the dynamic nature of cancer care and (iii) the evolving nursing profession (Miaskowski 1990).

The development of science and technology in health has significant impact on nursing care (Miaskowski 1990). One example is the addition of monoclonal antibodies to the radiation regime for head and neck cancer patients in recent years. This has presented challenges for nurses to generate new knowledge and strategies to manage the associated increased incidence of acneiform rash (Bonner et al 2006). The changing nature of service in cancer care with the move in emphasis from an inpatient to an ambulatory care setting (Ireland et al 2004) has also had a profound impact on nursing services. As a result,

hospital nurses are treating sicker patients, and the community nurse generalists need to acquire further knowledge and evidence to care for cancer patients in the community during and after treatment. Finally, it is evident that nursing services are evolving. Advancements in nursing include extended scope of nursing practice (Duffield et al 2009), nurse-led clinics (Loftus 2001, Williamson et al 2007) and care coordination (National Institute for Clinical Excellence 2003, Yates 2004). A new generation of nurse leaders are required to provide evidence to justify change (Brown and Sorrell 2009). Hence, continual development and utilisation of research knowledge in nursing practice is necessary to respond to the ever changing contemporary environment (Chang and Daly 1996).

Background

There is a robust body of literature reporting the barriers to research utilisation amongst nurses (Retsas 2000, Yates et al 2002). These barriers include poor research skills, lack of understanding of critical appraisal and statistical analysis, lack of time to access research and lack of training in undertaking research (Yates et al 2002, Hutchinson and Johnston 2004). The primary role of clinical nurses is direct care. Consequently, time for activities associated with improving care, such as keeping up to date with the literature or implementing findings from research is extremely limited (Upton 1999, Retsas 2000). Further, nurses have identified a lack of support for evidence-based nursing from their organisations and their nursing leadership. There is now a call for hospitals to provide infrastructure support for clinical research (Brown and Sorrell 2009).

Nursing research has historically been seen as the responsibility of nurse academics (Richardson 2005). Clinical nurses have been traditionally employed in the position of research nurses, assistants, trial coordinators or data collectors to conduct research under the supervision of a medical practitioner (Richardson 2005). Over the past two decades, there have been a number of strategies employed to foster research and evidence based practice in

the clinical setting. These include the appointment of nursing directors with specific responsibility for research (Buffum 1996), researchers who are based in a university and hold research fellow status (Deave 2005, Gattuso et al 2007) and professorial chairs (Dunn and Yates 2000); the latter appointments are mostly designed to achieve effective partnerships between academia and the health care sector. These appointments address research at an organisational level, rather than a focus on a particular specialised service area. Therefore, strategies targeting a service level are warranted to foster research amongst nurses within specialised teams.

White and Taylor (2002) assert that the strategy of educational institutions to prepare clinical nurses for appraising and utilising research at both pre and post-registration levels of training has been ineffective. A more 'realistic approach' based on the development of research specialists within nursing is advocated, rather than expecting all nurses to be competent at finding, appraising and utilising research-based evidence (White and Taylor 2002). The development of a collaborative research effort between nurse researchers and nurse clinicians was recommended as a strategy for generating clinically meaningful nursing knowledge (Kotzer 2000). This academic clinical strategy for research needs to be considered as a mandate, rather than an option (Brown and Sorrell 2009).

With the emergence of the nurse researcher role in the clinical setting, a distinction is highlighted between a 'nurse researcher' and a 'research nurse' (Deave 2005). The role of a nurse researcher is to conduct and facilitate nursing-oriented research, rather than simply providing support for research conducted by others. Post graduate qualifications are typically required for nurse researchers, whereas knowledge or experience of research is not usually a requirement for research nurses' posts (Deave 2005). In responding to the barriers to evidence based nursing, the literature has suggested strategies to establish the culture of inquiry including orientation programs, evidence based programs, journal clubs and in-service education (Krugman 2003, Gattuso

et al 2007, Milne et al 2007). The leadership and coordinating role of a nurse researcher, at the service level is well placed to carry out the activities outlined above. While the literature has documented the role of a nurse researcher in the clinical setting (Buffum 1996, Colbourne and Sque 2004, Deave 2005, Richardson 2005); there is a paucity of information with regard to the design, implementation and evaluation of the nurse researcher model at a service or departmental level.

METHODS

Setting

The Nurse Researcher Project (NRP) involved the design, implementation and evaluation of a nurse researcher model at Cancer Care Services of an Australian tertiary referral hospital. The nurse researcher was responsible for supporting a team of 210 full-time equivalent (FTE) nurses in Cancer Care Services, which include the departments of medical oncology, radiation oncology and haematology. This proposed model was innovative in that it was located in the midst of the clinical setting and functioned at the service level, rather than the organisational level.

Design

The implementation of the nurse researcher model aimed to increase research capacity in creating culture change and initiating actions and effects. It was envisaged by the research team that the implementation of this model would have a long causal chain on outcomes due to the complex nature of the nurse researcher role. As a result, a formalised evaluation was considered inappropriate. Therefore, Donabedian's (1988) model of program evaluation was used in this project. It was adopted to reflect its underlying premise in evaluating and describing the nurse researcher model. This well-established model has also been used for evaluating health care services / programs (Rossi and Freeman 1993, Sheen et al 2009). This approach focuses on classic 'structure', 'process' and 'outcome' in assessment of quality (Donabedian 1988). According to Parsley and Corrigan (1999), 'structure' refers to the resources in

the system which are required to meet the standard; 'process' measures the actions required to meet the standard; and 'outcome' reflects the effect of the health care program (Parsley and Corrigan 1999).

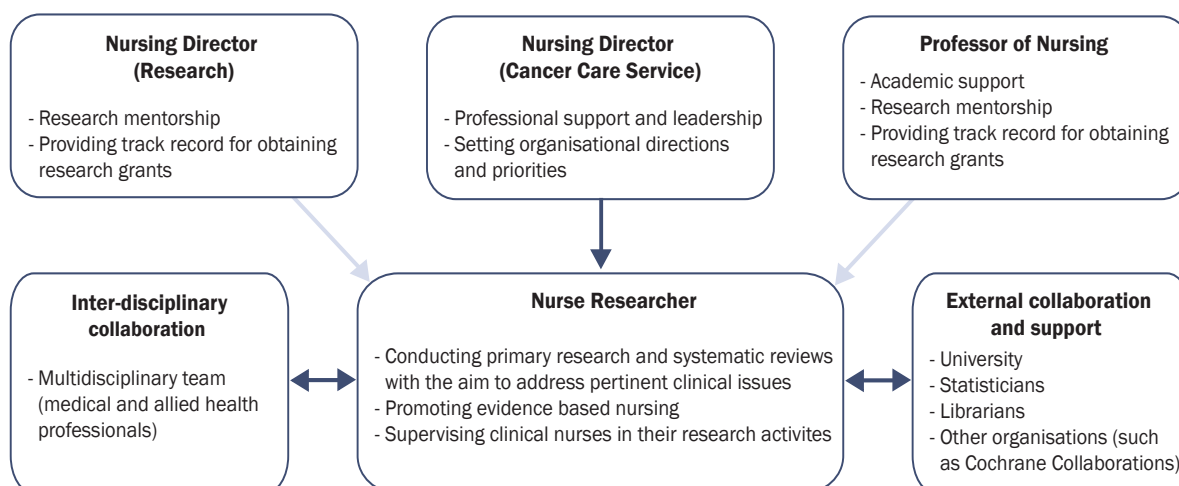
Structure

The structure is the nurse researcher model with the following features and support system. In this project, the nurse researcher model was developed from the literature and designed to be responsive to service needs. This model included a dedicated position and a support system that involved collaboration with key stakeholders. In this case, this included collaboration with senior researchers in the organisation, such as the Professor of Nursing and the Nursing Director (research). It also involved close liaison with the Nursing Director of Cancer Care Services (CCS), the multidisciplinary team, administrators and universities. The CCS Nursing Director was the major sponsor for this position and, with her leadership team, generated the initial vision for the role and its potential in building nursing research. Importantly, the CCS Nursing Director provided the professional

leadership necessary for sequestering ongoing funding for the nurse researcher position in a tight budgetary environment and ensuring the primacy of nursing research for this role in the multidisciplinary service context. Over the duration of the evaluation, the nurse researcher was appointed as an advanced practice nurse, with the salary and associated on-costs of approximately \$96,776 - \$113,453 per annum.

This nurse researcher professional structure was feasible and appropriate considering the context of the department. It provided the nurse researcher with access to organisational leadership and mentorship and support to target external research funding opportunities for research programs. The expectation of the nurse researcher was to be accountable at an advanced practice level for the development, coordination, implementation and evaluation of nursing research projects/programs to ensure clinical practice within Cancer Care Services was evidence based. Figure 1 provides an overview of the structure of the nurse researcher model.

Figure 1: Model of support system for the nurse researcher



Process

Prior to the commencement of the role, an extensive literature review was conducted to further translate the job description into activities which were considered relevant to the nurse researcher role. Data collection took place over the 24 month period, an activity log was used to record activities undertaken

by the nurse researcher since commencement of service. Table 1 outlines a list of actions and strategies that were taken by the nurse researcher over the 24 month project period in order to achieve the expected outcomes. All these activities were considered the main role of the nurse researcher and therefore, were undertaken during the paid time.

Table 1: The role of nurse researchers in an acute care setting

| Anticipated outcome of the nurse researcher position | Strategies used by the NRP |
|---|---|
| 1. Participating in evidence generation <ul style="list-style-type: none"> • Leading research projects • Conducting primary research and systematic review • Encouraging other nurses to conduct research as investigators and to disseminate findings | 1. Writing research protocols 2. Writing grant proposals 3. Applying for research grants 4. Applying for ethics approvals from the local Human Research Ethics Committee 5. Establishing links with research academics 6. Conducting evidence based practice programs 7. Supporting nurses to submit abstracts to conferences |
| 2. Supporting research utilisation <ul style="list-style-type: none"> • Encouraging clinicians to question their practice • Participating in teams in policy making and implementation of research • Conducting translational research | 1. Establishing working parties with policy makers, nurse educators and managers 2. Attending regular senior nursing staff meeting/ clinical case conferences 3. Providing consultations to nurses who have clinical questions on their practice 4. Providing information and pathways of research higher degree |
| | Collaborations Nurses in the specified clinical area, Nurse academics, Cochrane collaboration, Joanna Briggs Institute, granting bodies, librarians, nursing directors, nursing specialist, multidisciplinary team, policy makers |

Outcomes

The anticipated outcomes included (i) building capacity for a nursing research environment within the Cancer Care Services, (ii) disseminating research findings and research activities within and beyond the local level at Cancer Care Services, (iii) providing support for nurses to conduct primary research and systematic reviews and (iv) educating nurses to provide evidence-based care. As a result, an evaluation was conducted 24 months post implementation of the role. Over the 24 month implementation period, the engagement of clinical nurses in research was evident (see table 2).

i. Conducting primary and secondary research

Over the 24 months, 13 research proposals were submitted to research funding bodies. Of these 13 submissions, four were funded with a total amount of \$132,500 AUD. Fourteen cancer nurses from the Cancer Care Services were involved in these funded research studies as investigators. As a result of the research activities, seven manuscripts were submitted and accepted for peer-reviewed publications. These outcomes demonstrate the

involvement of clinical nurses and the potential impact of research activities undertaken in the CCS as a result of the appointment of the nurse researcher.

ii. Conference presentations

Over the implementation period, 13 abstracts were submitted to national and international cancer care conferences. Of these abstracts, six abstracts were written by the nurse researcher and ten were written by clinical nurses with assistance from the nurse researcher. All abstracts were accepted and presented in the form of either a poster or oral presentation. The presenters had to either self-fund their travel and conference registration, or apply for travel scholarships through internal or external opportunities. The nurse researcher did not receive more financial support for travel and conference costs than other nursing staff from the department. However, the nurse researcher could apply for conference leave (paid time) to present at conferences, because disseminating outcomes of research studies was one of the key roles of the nurse researcher.

Table 2: Deliverables of the nurse researcher over the first 24 months of appointment

| Outcomes for first 24 months of appointment of the nurse researcher | |
|--|---------------|
| Domain 1: Conducting primary and secondary research | |
| Number of proposals submitted to funding bodies | 13 |
| Number of clinical nurses who are involved in research studies as investigators | 14 |
| Number of funded studies | 4 |
| Total amount of funds granted for research studies (funded by external funding bodies) | \$132,500 AUD |
| Total amount of funds granted for disseminating research outcomes in conferences (funded internally by the organisation) | \$7,000 AUD |
| Total amount of funds granted for participating in conferences (funded by external bodies) | \$2,500 AUD |
| Number of completed systematic reviews | 4 |
| Number of ongoing systematic reviews | 2 |
| Number of abstracts submitted and accepted | 13 |
| Number of peer-reviewed publications submitted and accepted | 7 |
| Domain 2: Promoting evidence based practice | |
| Number of consultations with nurses | |
| • for their abstract submissions | 16 |
| • for evidence searching and appraisal directly related to their practice | 20 |
| Number of in-service education sessions provided | 9 |
| Number of nurses completed a 12 week evidence based practice workshop | 3 |
| Number of nurses who attended the education | 126 |

iii. Evidence based practice promotion

A 12 week evidence based practice workshop was commenced 12 months after the appointment of the nurse researcher. A total of three clinical nurses have completed the workshop. In this workshop, they each conducted a systematic review, using the Cochrane Collaboration methodology, on a topic relevant to their clinical practice. All of them have presented the outcomes locally to the nursing staff in their department, as well as at cancer care conferences. Additionally, a total of 126 nurses, from various departments of Cancer Care Services, have attended at least one of the 30 minute in-service education sessions on developing relevant clinical questions and database searching.

DISCUSSION

The NRP has been successful in integrating the role of a nurse researcher at a service level of a large tertiary hospital. Within the first year of appointment, primary research and systematic review activities have been initiated. While it was identified in the literature that one of the barriers to

evidence utilisation could be lack of support from the organisation or nursing administrators (Parahoo 2000); in this study context, this has not been the case. The nursing leadership has played an important role in creating a supportive environment for evidence generation and utilisation by creating the nurse researcher position and designing a support system for the position. The project has demonstrated the success and usefulness of the nurse researcher model in supporting nurses at a specialist service level. This paper demonstrates progress to date in building research capacity, but does not completely identify the full potential of such a role in the future. The evaluation shows that this model is feasible and may be effective in supporting clinical nursing research in a range of service areas.

With today's emphasis on multidisciplinary care and its benefits in improving patient outcomes (Wright et al 2007), it is necessary for multidisciplinary research to be undertaken. By building research capacity in the nursing workforce, the position of nurse researcher may enhance the involvement of nurses in the specialist service to collaborate with

clinicians from other disciplines in designing research programs, which can truly reflect the 'complex, multidimensional nature' of cancer care and its associated problems experienced by patients and their families (O'Connor 2009).

CONCLUSION

While evidence-based nursing has become an expected standard and an integral component of improving patient care, barriers and resistance to research remain. This project has demonstrated the successful implementation of the nurse researcher role. This required the commitment of the nursing director in sponsoring the position and experienced senior researchers in supporting the nurse researcher role. The authors recommend that genuine recognition, moving beyond rhetoric, by nursing leaders in the clinical settings is urgently required. The literature is clear that a supportive infrastructure and environment for evidence generation and utilisation is necessary to inform safe, effective and quality nursing care.

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