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**Clinical Academic Posts for
Nursing: A Literature
Review**

prepared by

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Building Knowledge Exchange:
Clinical Academic Posts for Nursing and
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Executive Summary

1. Background and Objectives

With the support of the Chief Nursing Officer and NHS Education Scotland, Dr Annie Weir and Professor Jenny Ozga, Centre for Educational Sociology, University of Edinburgh, and Professor Kate Niven, of the University of Stirling are conducting a research project entitled “Building Knowledge Exchange: Clinical Academic Posts for Nursing and Recognition of Knowledge between Health and Higher Education Systems”.

The research aims to identify and understand the barriers to and facilitators of the development of senior clinical academic posts in nursing in Scotland in the context of the implementation of NHS Education Integrated Principles and Career Framework for Clinical Academic Research Careers.

For the purpose of this research, clinical academic posts are defined as those that involve clinical practice as well as university based research and teaching. In Scotland, current developments put the emphasis on clinical academic research careers. There are currently numerous clinical teaching arrangements in place.

The investigation involves a review of international and Scottish literature as well as case studies of partnerships in three selected health boards in Scotland and their partner universities.

This literature review is the first deliverable of the project. The remaining two deliverables are (i) a report on all three case studies and (ii) the final report.

In accordance with the research brief, the literature review:

- Identifies key features of clinical academic partnerships in selected international contexts;
- Provides a comprehensive overview of the evidence base in the academic and policy literature relating to clinical academic careers in nursing, identifying common or recurring themes;
- Identifies those features that are working well and what could be improved in current models;
- Places these developments in the contexts of wider occupational change;
- Identifies productive conceptualisations of knowledge and research translation;
- Refines the evidence base to be tested in the empirical investigation phase of the research.

2. Methodology

The review follows academic conventions in the identification of core literature, including policy literature, in that a very wide-ranging research was undertaken, focusing specifically on discussion of the development of clinical academic careers, but with attention to the policy context. There is no existing comprehensive review of international literature in the development of clinical academic careers in nursing. Key texts were identified in each main

focus area in the review relating to comparative models and perspectives on organisational sociology and sociology of knowledge, and the sample was then developed by following references from within those starter texts (see Appendix 4).

Each document was reviewed and analysed with respect to the objectives listed above, and cross-cutting issues and conclusions were provisionally identified. We then drew on knowledge of the field from earlier work (Weir 2009), from extended conversations with Professor Niven, and from our current research on the European Commission Framework 7 research project on knowledge and policy in the health and education sectors in Europe
(domain no longer valid)

3. Key Findings

3.1 What is Developing?

There has been considerable progress internationally in enhancing the status of nursing knowledge and in supporting the development of clinical academic careers.

These developments include:

- Strategic investment in nursing research at all levels;
- Building relationships between the different partners involved;
- Creating centres of excellence with a focus on knowledge exchange to policy and practice.

3.2 Where is there Scope for Improvement?

Barriers to the development of clinical academic careers also seemed to be considerable. Some overarching themes emerged relating to areas for improvement. These are:

- Building genuine partnerships between the health service and higher education, with attention to strategic and operational constraints on these developments;
- Providing a clear career path from undergraduate to leadership status, with more developed infrastructures of support;
- Attracting and retaining clinical academic leaders with professorial status;
- Closer and more visible alignment of research priorities in nursing with policy priorities;
- Building on ideas of knowledge exchange and translation to support clinical academic careers in nursing.

3.3 Key Messages for Scotland from the Review

Key messages for the development of Clinical Academic Research Careers for nursing in Scotland are identified as follows:

- To increase investment in leadership roles such as clinical chairs and clinical academic professorships;

- To build on the synergy between health policy priorities, the quality improvement agenda and the development of clinical academic careers;
- To build on the Framework Principles to develop a more co-ordinated, coherent and transparent portfolio of career pathways so that the routes to progression are more clearly defined;
- To fill gaps in the evidence base, especially in relation to the impact of clinical academic posts in nursing on the translation of research knowledge into improved patient outcomes;
- To develop a stronger focus on the potential of the 'translation' role in research production and utilisation.

1. Introduction

The concept of evidence-based practice underpins the drive for quality healthcare improvement globally (Committee on Quality Healthcare in America and Institute of Medicine, 2001). There is a strong push for nursing, as a key component of healthcare delivery, to base its practice more strongly on evidence. To this end, governments, health authorities and the nursing sector internationally are striving to build quality, capacity and capability in nursing research, teaching and scholarship (Aiken, 2008; Baumann and Blythe 2008; Cooke 2005). Nursing is maturing as an academic discipline and a small but growing literature now links developments in nursing education, research and scholarship with improved outcomes for patients (Rafferty et al., 2007; Tourangeau et al., 2006). To realise its potential as a significant contributor to quality improvement in health, new nursing knowledge must be translated into practice. However, uptake of the evidence base by practitioners across health, including in nursing, has been slow and is of concern to senior healthcare leaders (Clinical Effectiveness Research Agenda Group (CERAG) 2008; Gerrish et al., 2008).

The purpose of this review is to explore the proposition that the creation of clinical academic posts is one effective way to bridge this gap. Clinical academic posts involve clinical practice as well as research and teaching. They can be seen as creating and embodying a partnership between health systems (knowledge users) and higher education (knowledge producers) (Weir, 2009). Implementing the right balance of clinical academic posts in nursing departments in universities should enhance research quality and provide a stronger evidence base to support healthcare improvement.

1.1 Evidence-Based Practice and Quality Improvement

Evidence-based or evidence-informed practice is the process of systematically finding and using contemporary research as the basis for clinical decision making (Long and Harrison, 1996).

It is a complex and contested construct, conceptualized in various ways (Lomas, 2000; Nutley et al., 2008; Tetroe et al., 2008; Powell, Rushmer and Davies, 2008). The randomised controlled trial (RCT) is often seen as the gold standard for evidence in health, and many nursing researchers argue strongly for the conventional science base behind nursing interventions (Niven, 2010). However, Wilkinson (2010) argues that evidence from randomised trials to support nursing practice and other forms of evidence should be valued for the potential to inform practice (eg see NICE, 2008). Barker (2000) contends that there are problems in generalising evidence from quantitative studies of populations to nursing, which involves crafting care around the individual. These observations identify issues in what we call the 'translation' of knowledge, and we return to this in part 4.

There is a growing body of literature supporting evidence-based practice and improved outcomes as the measure of successful evidence use (Davies et al., 2006; Royal College of

Nursing, 2009; Wilkinson et al., 2010). However, Wilkinson (2010) suggests looking beyond the instrumental use of evidence into practice, favoured in audits. Her view is that subtle changes derived from the use of research in nursing practice are evident through increased confidence, knowledge and understanding of evidence and that these changes are not easily measurable and often overlooked in favour of more technical and measurable outcomes (p2).

Definitions of quality can be contested, complex and multi-faceted, too. Sutherland and Dawson (1998) argue that individual actors define quality according to their experiences, values and assumptions. Powell, Rushmer and Davies (2008:59) note that what counts as 'quality' in healthcare is contested, although government policy is coalescing around the U.S. Institute for Healthcare Improvement's (IHI) definition. For example, the Scottish Government (2010) defines quality of health care using the IHI's six criteria: safe, effective, patient-centred, timely, efficient and equitable. Helping individuals to understand and work within quality health initiatives presents a challenge for healthcare organisations struggling to achieve lasting quality improvements in routine practices (Powell, Rushmer and Davies, 2009).

1.2 Knowledge Exchange and Knowledge Translation

It is not only the nature of the evidence base in healthcare, and the nature of quality, that is contestable. So too is the issue of how to translate evidence into practice, with theoretical constructs and approaches including implementation science, knowledge transfer and knowledge exchange, all focusing on the flow between the knowledge-creating environment and the practice environment.

Knowledge exchange is a key area of concern in higher education globally (ESRC, 2009b; Nedeva, 2007; Ozga and Jones, 2006; Ozga, 2007; SFC, 2009). There is no single agreed definition of knowledge exchange: it is about the two-way flow of people and ideas between the research environment and the wider community. In Scotland the Chief Scientist Office's new research strategy "Investing in Research/Improving Health" has as a key objective the fostering of evidence-based healthcare through translation of knowledge into practice (The Scottish Government, 2009a:6). In health contexts the concept of knowledge translation favoured by the Canadian Institute of Health Research (CIHR), has found favour in some UK health services; for example, it has been adopted by the recently established South Yorkshire Collaborations for Leadership in Applied Health Care Research and Care (CLAHRC) (Gerrish, 2010b).

In knowledge translation researchers and research users take collective responsibility for engaging in exchange, synthesis and application of knowledge (CIHR, 2005). This concept resonates with the notion of knowledge exchange in higher education, where some approaches to the concept of knowledge translation extend it to include new ways of thinking about research as a collective and integrated activity, involving different interests and knowledges. Maximizing the benefits of health research is a key area for knowledge exchange. This is not limited to the transfer of new technologies, but also concerns developing research-aware and research-active health professionals, as promoted in the

Finch Report (UK Clinical Research Collaboration, 2007), the UK's key policy document for nursing research. Despite the long-term existence of medical clinical academic structures which create and embody an active partnership between health practitioners and knowledge producers, there has been little exploration of how knowledge exchange in health can be enhanced through clinical academic structures for nursing.

Clinical academic posts for nursing have the potential to enhance evidence-based practice and quality improvement through the co-production of knowledge in direct patient care research. There is much that we need to know about the establishment and maintenance of these posts before this potential can be realised (Weir, 2009).

The concept of evidence-based medicine/health rests on an implicit assumption of a partnership between universities as knowledge-generators (evidence) and health systems as utilisers of that knowledge (Weir, 2009). However, there are reasons why such partnerships may be difficult. For example, the NHS requirement for knowledge about practical solutions to healthcare problems may not align with a university agenda to create and disseminate new knowledge (ibid). A full understanding of these tensions requires an analysis of structural, organizational and contextual issues on both sides - these are explored in this study.

2. Comparative Models for Implementing Clinical Academic Posts for Nursing

This section focuses on analysis of relevant policy documents and journal articles mainly from the past decade on clinical-academic partnerships in nursing in Scotland and international comparators (England, Northern Ireland, Australia, USA, and Canada) in order to identify key features of models of clinical-academic partnerships in specific contexts, and identify those that relate to the Scottish context. In addition a brief note on the response of Wales to the Finch Report (UKCRC, 2007) and Nurse Consultant posts has been included. The literature reviewed focuses on the establishment and maintenance of clinical academic roles in nursing, with particular attention to analyses of facilitators of and barriers to recognition.

Summaries of the main points from this comparative review can be found in the three Appendices to this report: Appendix 1 summarises challenges to clinical academic post holders in nursing, Appendix 2 places Scotland in comparative context, in terms of facilitators of and barriers to clinical academic careers in nursing, and Appendix 3 offers a framework for sustaining and locating clinical academic posts for nursing beyond 2010.

2.1 United Kingdom

The drive by the nursing, midwifery and allied health sector to establish and secure clinical academic structures has been supported at policy levels in both Scotland and England (Scottish Executive Health Department, 2004; UK Clinical Research Collaboration, 2007; UK Clinical Research Collaboration, 2009). Policy documents and discussions include a strong knowledge exchange and quality improvement rationale, characterized by discourses around evidence-based health care and quality improvement via a continuum of research-aware to research-active professionals (Wilkinson, 2008).

Unlike academic medicine, where progression is supported by schemes that go from acceptance into Medical School right through to the establishment of senior clinical academic posts, a pathway for clinical academic careers in nursing and allied health professionals in the UK has proved difficult to achieve and maintain (Weir, 2009). Schemes depend on cooperative arrangements between higher education institutions and health organisations, which can pose challenges (*ibid*).

Although nursing research has been encouraged through research training schemes which fund PhD Studentships and Postdoctoral Fellowships, capacity building seems to have run into a roadblock at the level of post-PhD pathways into clinical academic careers. This section highlights responses to this issue and to the influential Finch report (UKCRC, 2007). Anecdotal evidence suggests that early career nurse researchers completing doctoral or postdoctoral studies usually either return to senior health service positions, finding it difficult to incorporate research among their duties, or leave the health professions to take permanent university positions, either in nursing or health research. A number of reports

have noted this issue, including the Finch Report itself which states: 'There are consistent accounts of nurses who wish to undertake research and teaching having to leave the clinical setting to pursue career development as researchers or educators' (UKCRC, 2007, p17) However there is little research into the causes and consequences of the problem (Latter, Macleod Clark, Geddes and Kitsell, 2009).

Nurse Consultants

Nurse consultant positions are a UK wide development paralleling the medical career pathway and are one form of clinical academic career. Post holders usually spend a minimum of 50% of their time working directly with patients and 50% of their time involved in research and evaluation and contributing to education, training and development <http://www.nipjobs.com/Nurse-Consultant>. Each consultant role will be very different, depending upon the needs of the employer. The Nurse consultant's post is discussed in the following sections on the responses by the constituent countries of the UK to the development and implementation of clinical academic careers.

The Academy of Nursing, Midwifery and Health Visiting Research

The Academy of Nursing, Midwifery and Health Visiting Research was established in 2004 as a collaborative enterprise by the Royal College of Nursing, CPHVA – UNITE and the Royal College of Midwives in partnership with The Council of Deans for Health, the Nurse Directors group of the Association of UK University Hospitals, the Association for Leaders in Nursing, the Queen's Nursing Institute, Mental Health Nurse Academics UK, the UK Clinical Research Facility Network and Nurses in Primary Care Research (The Academy of Nursing, Midwifery and Health Visiting Research, 2010).

The aim of the Academy is: "to be an expert collaborative voice for all aspects of research involving nursing, midwifery and health visiting in the UK, including policy development, its implementation and evaluation through negotiation and dialogue with other key stakeholders" (ibid:1)

According to the Academy, "Clinical leadership as a force for innovation and improvement has re-emerged within Government policy across the UK" (ibid:1). One of their work streams focuses on research leadership and capacity, and activities for 2010 included: a series of inspirational lecturers from leading research academics who are nurses, midwives or health visitors; seeking active engagement in the leadership development work of the Department of Health and the NHS Institute for Innovation and Improvement; and conducting a Delphi survey into subjects for research that can be commonly agreed between senior leaders in service and academia. It is hoped that an eventual research short list would be agreed upon and that researchers will be motivated to apply for research funds so that investigations can begin. Also members are committed to developing mentorship schemes and providing expert support for those developing their clinical academic careers (ibid).

Walport Report (2005) on Clinical Academic Careers in Medicine and Dentistry

The influential Walport report, 'Medically and dentally qualified academic staff: recommendations for training the researchers and educators of the future', was produced by the Academic Affairs subcommittee of the UK Clinical Research Collaboration (UKCRC) and the Department of Health's Modernising Medical Careers (MMC) initiative, and was chaired by the Wellcome Trust's Director, Dr Mark Walport. The report, published in March 2005, set out a clear training pathway for doctors and dentists wishing to pursue a career in clinical academic medicine or dentistry. Key issues identified were: the lack of clear routes of entry into a research career, difficulties of combining clinical and academic training, and a shortage of suitable posts upon completion of training (UKCRC, 2005). This report led the way in positioning clinical academic careers as important in medicine and dentistry and the Finch Report (UKCRC, 2007) picked up on similar issues in establishing clinical academic careers for nursing and midwifery, findings that may equally apply to the allied health professions.

The Finch Report (2007)

The Finch Report offers a UK perspective on preparing and supporting clinical academic nurses, but reflects the English situation most strongly. The report highlights both barriers to and facilitators of the development and maintenance of clinical academic posts for nursing (UKCRC, 2007). Significant barriers were identified in education and training, employment structures, and research generation and utilisation.

1. Education and training: the lack of exposure to research at undergraduate level, and lack of nurturing of research skills at graduate level is seen as hindering the development of a nursing research culture. When nurses do undertake doctoral studies they tend to be self-funded and work part time with little or no guidance or support. Even though there have been schemes to provide PhD scholarships, only a small number of nursing PhDs have undertaken postdoctoral studies. A lack of research career planning and mentoring was also noted. The Scottish NMAHP Training Scheme's provision of fully funded post-doctoral fellowships was a notable exception to this general rule (see Section 2.2).
2. A number of employment structure issues directly impact on establishing clinical posts. Current employment contracts make it difficult to work in both academic and clinical settings. Pay scales differ between clinical practice and research, resulting in too few joint HEI/NHS appointments. Post holders often report a high clinical workload, swamped by teaching and a lack of protected time for research, a situation that may lead to burn out. Researchers appear to have a variety of job descriptions, roles and titles. They often work in the context of poor appraisal systems, with limited education and training opportunities and lack of career guidance. In addition, there seems to be an 'anti-academic culture' in the NHS that may obstruct the development of integrated and flexible career paths.
3. There is a growing recognition by nursing leaders and policy makers that there is a lack of research capacity and capability in nursing academic departments and that there is a

need for targeted financial support to facilitate research development. Moreover, nursing research with healthcare improvement potential it is often not taken up by the service because there is a lack of capacity and capability in the nursing workforce to utilise research.

Another issue of concern raised by the report is the lack of authoritative data on nurse researcher issues. Information on nursing research has been collected in a piecemeal way resulting in nursing research being viewed as fragmented and incoherent.

The Finch Report set out UK-wide recommendations in three key areas: education and training; facilitating careers and better information on nursing research (ibid, 21-25). Recommendations included the development of clinical academic pathways for nurses from the exposure of undergraduates to research through to the establishment of more doctoral, post doctoral and senior clinical academic nurse positions. Other recommendations focused on increasing career flexibility through sessionally based contracts of employment to allow nurses to work as clinicians while also undertaking research and/or teaching in an HEI. The report also made recommendations on improving access to mentoring and peer support (ibid).

Responses to these recommendations are described below in the section on each country in the UK. In the Finch report it is argued that targeted investment in nursing research capacity and capability makes a difference to the quantity and quality of the research. This is borne out in the recent Research Assessment Exercise (RAE) 2008.

UK Research Assessment Exercise (RAE) 2008

The Research Assessment Exercise (RAE) is a rigorous examination by panels of experts of the quality of research (including nursing research) in UK universities. The results are used to determine the allocation of public funding for research from funders of universities, such as Higher Education Funding Council for England (HEFCE) and the Scottish Funding Council (SFC). For a more detailed description and analysis of the RAE see <http://www.rae.ac.uk>.

Nursing has a relatively young research tradition which was reflected in the 2001 RAE when it was ranked bottom of the subject area league table. In the most recent RAE conducted in 2008 Nursing and midwifery research was ranked 44th out of 67 subject areas - this was a significant improvement (Times Higher Education, 2008, p31-41). Direct comparisons in results between the 2001 RAE and 2008 RAE are complicated because a new framework for assessing quality profile was introduced and the definitions of quality levels used in the 2008 RAE are different from those in the 2001 RAE. In the 2008 RAE nineteen percent of the research submitted in UoA 11 (Nursing and Midwifery) was ranked 4*, reflecting quality that is world leading in terms of originality, significance and rigour (Council of Deans of Health, 2008). Where nursing research was recognised as world leading or excellent, it came from research environments that had secured significant numbers of funded research studentships, doctoral students, doctoral degrees achieved, success in competitively won income and established high quality infrastructures to support international collaborations and research strategies (McKenna, 2008).

A growing number of nurses are involved in multi-disciplinary and interdisciplinary research activities and outputs and their contributions were submitted to sub panels other than UoA 11 for example UoA 12 Allied Health Professions and Studies; therefore the comments on UoA 11 from the sub-panel for Nursing and Midwifery do not necessarily reflect all nursing research achievements (McKenna, 2008).

Targeted investment by funding bodies to support the development of nursing research has significantly contributed to this improvement (McKenna, 2008). In UoA 11 the sub-panel for Nursing and Midwifery subject overview report it was noted that:

“a continuous and sustainable funding stream is required to maintain the upward trajectory and to enhance capacity building in the 56% of the eligible departments of nursing and midwifery that did not submit to this UoA [11]” (McKenna, 2008:6)

Topping (2008) noted that even with modest investment in nursing research, excellence was demonstrated in the 2008 RAE and she suggests that with additional investment even more excellence could be achieved.

In order to capitalise on this improvement in the quality of nursing research, and the growth of doctoral studies in nursing, knowledge transfer through the establishment and development of clinical academic careers for nurses should be encouraged. The relative underdevelopment of such careers in comparison to medicine with its long tradition of clinical academic careers may demonstrate a lack of shared understanding of what constitutes valuable knowledge and high quality research by universities and health organisations. The empirical phase of this study will contribute to our understanding of the causes and consequences of the problem of nurses having to leave the clinical setting to pursue career development as researchers. The approach of each of the constituent countries of the UK to fostering nursing research and clinical academic research careers is discussed below. The new clinical research career structures for nurses, midwives and allied health professionals that are being developed across the UK, based on the Finch Report recommendations, will also be discussed (UKCRC, 2009).

2.2 Scotland

There are significant benefits to Scotland in harnessing academic nursing research to better inform health care and health services and to improve the quality and outcomes for patients. Nursing research seeks to be both useful and relevant to the needs of the Scottish health services and the achievement of excellence requires facilitation through the establishment of collaborations and partnerships between health service providers, HEIs, policy makers and research funders. The new CSO research strategy for Scotland's health has translation at its heart (The Scottish Government, 2009a). Clinical academic nurses are ideally placed to facilitate research translation in order to enhance Scottish patient care and the nation's health.

This section discusses significant policy documents and initiatives from the 1990s to the present day that have influenced the establishment of nursing as an academic discipline within higher education and which have led to increasing importance being placed on the

development of nursing research and the development of clinical academic posts. It should be noted that initiatives to promote clinical academic careers for nursing and nursing research have often been closely associated with or partnered with midwifery and also with wider NMAHP developments.

Early Developments in Growing Nursing Research

Since the early 1990s there has been growing concern that nursing practice and education were not sufficiently underpinned by evidence (Scottish Executive Health Department, 2002). In 1991 the Scottish Home and Health Department and Chief Area Nursing Officers produced a strategy in response to this concern (ibid). Although there appeared to be a commitment to nursing research, the strategy faltered because of a lack of the necessary infrastructure and expertise to take it forward (ibid).

Since the mid 1990s there have been focused initiatives to encourage nursing and allied health professions to engage in research activities. In 1994 The Chief Scientist Office funded the establishment of the Nursing Research Initiative for Scotland to encourage nursing professionals' involvement in direct patient care research. Its remit was later extended to include Allied Health Professionals (AHPs) (SEHD, 2004) and the Unit was renamed the 'Nursing Midwifery and Allied Health Professions Research Unit' (NMAHPRU). The move in 1996 by the majority of Schools of Nursing and Midwifery into the university sector provided both an expectation and opportunities for nurses and midwives to engage in research relevant to their practice.

Evidence-based healthcare as a concept was introduced into Scotland's health policy through such documents such as "Designed to Care" (Scottish Office Department of Health, 1998) and the Health Plan for NHS Scotland (SEHD, 2000).

UK Research Assessment Exercises 1996 and 2001: Nursing Results

Within the context of growing importance being placed on evidence-based healthcare, Schools of Nursing and Midwifery took part in both the 1996 and 2001 UK Research Assessment Exercises. The overall UK nursing results were better in 2001 than 1996, however, Scotland did not contribute as had been hoped to this overall improvement (Scottish Government, 2002). In Scotland in 2001 less than half the eligible academic departments entered Unit of Assessment 10 (Nursing), less than 10% of staff in those departments were entered and they achieved only marginal improvements in ratings (Scottish Government, 2002). Concerns were raised that without investment, Scotland was in danger of falling behind England in terms of nursing research (ibid).

2001 Research Policy Developments

'Caring for Scotland' (SEHD, 2001a) highlighted the importance of research and development to nursing and midwifery practice and to the delivery of high quality evidence-based and clinically effective services. The 'Research Governance Framework for Health and Community Care' (SEHD, 2001b) defined standards for good research practice.

A decade of development

Our attention now turns to initiatives over the past decade involving the Scottish Government, the Scottish Funding Council, NHS Education Scotland and the Health Foundation which have built research capacity in nursing, midwifery and allied health professions (SEHD, 2002; Holdsworth and Blair, 2004; Tierney, 2007a&b; The Scottish Government, NHS Scotland, 2007).

Choices and Challenges 2002

'Choices and Challenges: the strategy for research and development in nursing and midwifery in Scotland' which built on 'Caring for Scotland' (2002), was a key policy document that renewed the focus on developing research capacity and capability in all nursing and midwifery departments (Scottish Executive Health Department, 2002). The strategy aimed to promote research awareness; research activities and utilisation; as well as the development and implementation of clinical academic career pathways in research (ibid).

Dowding Report 2003

In 2003, the Scottish Executive Health Department (SEHD) and the Scottish Higher Education Funding Council (SHEFC) now the Scottish Funding Council (SFC) commissioned a report to inform future investment in research infrastructure and capacity building in nursing, midwifery and allied health professions; it became known as the 'Dowding Report' (2003). Future investment was aimed at increasing the amount of patient focused healthcare research in Scotland; building capability and leadership to carry out high quality clinical research; promoting multi-disciplinary and inter-agency collaborations across Scotland and encouraging and supporting research career development for Nursing, Midwifery and Allied Health Professions (NMAHPs). The Dowding Report reviewed the research capacity and capability as well as strengths and weaknesses of all academic departments for nursing, midwifery and AHP disciplines in the higher education sector in Scotland. International funding models were examined for their potential to provide insight into the best methods for increasing research and capacity and capability. This report was used to inform future funding decisions.

NMAHP Research Training Scheme 2003

The NMAHP Research Training Scheme (RTS) (now completed) was developed in response to 'Choices and Challenges' (2002) and 'Caring for Scotland' (SEHD, 2001a) which recommended the creation of partnerships between HEIs and NHS in clinical research and called for the identification of funding streams to support research activities (Jones, 2008). The RTS initiative, launched in 2003 and with its first intakes in 2004, was jointly funded by the Scottish Executive Health Department (the Chief Scientist Office and Chief Nursing Office), NHS Education (NES) and The Health Foundation. The RTS was designed to increase research capacity and capability within NHSScotland by supporting six PhDs and six post-doctoral fellows (early career posts) for NMAHP clinicians who spent one day a week

working for the NHS. The £1 million of competitive funding was awarded to a consortium of five HEIs and the NMAHP Research Unit, led by the University of Dundee and together they worked closely with NHS partners.

The scheme has been successful with 5 PhD studentships completed and the post-doctoral fellowship holders contributing significantly to research outputs, and raising the profile of NMAHP research in Scotland (ibid, 2008). Participants in the RTS have tended to opt for positions in an HEI rather than pursue a career as a clinical academic as had been hoped, largely due to the lack of a clear clinical academic framework or career path. This significantly restricted the opportunities for those completing the scheme to retain their NHS employment (ibid, 2008).

Further initiatives to build research capability and capacity

NHS Education Scotland agreed that the remaining funds from the NMAHP Training Scheme could be used on three additional initiatives to raise capability and capacity in NMAHPs (Jones, 2010). The initiatives were undertaken in Forth Valley, Highlands and Islands, Tayside and Fife, and Grampian and Shetland. Activities included a series of six research workshops for practitioners interested in research (Grampian); grant writing (jointly funded with Tayside NHS); and In Forth Valley a short research secondment for a single practitioner provided at the University of Stirling (Jones, 2010).

Leadership training

NHS Education Scotland agreed to leadership training for NMAHP training scheme recipients, and for early career researchers in the training scheme host Universities. Training was provided by the Leadership Foundation in September and November 2009 (Jones, 2010).

Strategic Research Development Initiative 2004

In 2003, informed by the Dowding report, the Scottish Higher Education Funding Council (SHEFC) (now Scottish Funding Council (SFC)), the Scottish Executive Health Department (Chief Scientist Office and Chief Nursing Office) and NHS Education (NES), together with contributions made by the HEIs jointly funded a £12.45m initiative designed to support Scottish NMAHP research through a Strategic Research Development Grant (Tierney, 2007a). The collaboration supported three Research Consortia of universities in partnership with NHS Boards in the area to undertake research on nursing, midwifery and allied health professions practice, patient-centred research and build research capacity and capability. The three research consortia in Scotland, which became operational in 2004 were:

- the Alliance for Self Care Research (ASCR) covering the north, and north east of Scotland;
- the Centre for Integrated Health Care Research covering the south and south east of Scotland;
- Health Qwest covering the west of Scotland (ibid).

In addition to the three research consortia, the NMAHP Research Unit was already part of the NMAHP research infrastructure (See section below on the NMAHP Research Unit).

Tierney (2007) noted that the establishment of the Research Consortia, along with the existing NMAHP Research Unit had enhanced research capacity and research capability (pp7-12). Each of the Consortia developed different forms of clinical academic arrangements, for example one consortium established part-time Clinical Research Fellowships designed to enable clinicians to engage in research with the Consortium and the NMAHP Research Unit introduced clinical secondments to allow clinicians to work with staff for agreed periods of time (p10). Of the 58 post holders working in the Consortia and the NMAHP Research Unit there are nine professors (15.5% of all staff) and 35 staff have a PhD (p10). The full capacity of the Consortia and the NMAHP Research Unit is greater than the number of research posts because other researchers, for example clinicians as co-investigators, collaborators and advisors have been invited to take part in research activities (ibid). The four centres have successfully undertaken clinically-relevant and patient focused research (ibid). As the funding from the initiative comes to an end, Consortia partners are challenged with making new arrangements to maintain and strengthen nursing research and clinical academic careers.

Engaging with Frontline NMAHPs

In 2005 a booklet 'Making Choices, Facing Challenges' was launched, designed to encourage NMAHP's to develop a research career (Scottish Executive and NHS Education for Scotland, 2005). The booklet supports the development of more evidence-based professions. It highlights the research strategies and initiatives which have been implemented in Scotland to support evidence-based practice and to improve patient care. It also identifies a 'route map' for aspiring researchers to embark on a clinical academic career (ibid).

Scottish Research Nurse and Coordinators Network 2005

The Scottish Research Nurse and Coordinators network was established in 2005 to provide a resource for clinical research nurses, trial coordinators and others working in clinical research (Hill, 2010). They currently have over 200 members in Scotland and beyond. Their activities range from supporting research nurses in their current role and career development (the network was recently awarded £30,000 by the Scottish Academic Health Sciences Collaboration) to organising national conferences and contributing ongoing policy fora (ibid). Hill distinguishes a research nurse from nursing researchers. A research nurse is one who participates in clinical studies with varying degrees of responsibility from coordinating and administering studies to running studies independently. Nursing researchers, usually academics lead or collaborate on research, including clinical trials (ibid).

Analysis of NMAHP Research Capacity and Capability 2006

In 2006, an analysis was undertaken of research capacity and capability in nursing and midwifery (Tierney 2007a) and allied health professional in universities which formed the basis of a separate report (Tierney, 2007b). The AHP report included a comparison with nursing and midwifery, it noted that AHP disciplines had almost the same approach as nursing and midwifery to capacity building and they were positive about the 2003 and 2004 NMAHP research initiatives discussed above. The barriers and perceived need for further

support were also very similar and these are discussed in the nursing and midwifery report below (Tierney, 2007b).

Tierney, repeated the 2003 scoping exercise to inform Scotland's approach to the UKCRC proposals setting new directions for research training and career development and implementing modernising of the nursing careers 'Developing the Best Research Professional' (UKCRC, 2006).

This section discusses the Tierney report that was based on a survey of university departments/schools of nursing and midwifery conducted towards the end of 2006. She noted that since 2003 there had been encouraging growth in key indicators of capacity building and the quality and quantity of research being undertaken. These included: several more professors had been appointed (from 16 to 23); more research dedicated posts created attributed to the NMAHP Research Consortia; more staff than ever before working towards a higher research degree (growing from 152 to 194, of which 149 were registered for a doctoral degree); more staff with a doctoral degree (from 79 to 119), and a steady increase in the number who had obtained the necessary experience to be eligible to supervise doctoral degrees; a few staff embarked on post-doctoral research training (three fellowships provided by the RTS); more research active nursing academics (from 10% to 33% of staff) engaged in at least one project; and all academic departments of nursing and midwifery had been successful in obtaining funding from a wider range of contestable funding bids. Together, these indicators demonstrated progress on the road to embedding nursing research and developing clinical academic careers.

Tierney points out that the NMAHP research initiatives (RTS and Research Consortia) were positively acknowledged in the survey by the majority of participants, and in particular by the HEI institutions who had directly benefited through the creation of research posts and the fostering of the links between research and practice with partner NHS Boards. It was also noted that the Research Consortia and RTS initiatives sat alongside the existing CSO funded NMAHP Research Unit (see below) and the CSO research training fellowships scheme which included NMAHPs (ibid).

Tierney points that it was beyond the scope of the survey to determine the extent to which the NMAHP research initiatives succeeded in making an impact on the nursing and midwifery research capacity and capability as a whole (ibid). Tierney also identified gaps and barriers still perceived to exist to capacity building and the development of nursing research. The lack of ring fenced funding for nursing research and insufficient funding to support nurses wishing to undertake higher research degrees was seen as a barrier. She noted that although there had been an increase in the number of eligible staff to supervise PhDs there was overall a lack of staff qualified at doctoral level in the academic departments of nursing and midwifery and this hampered the expansion of doctoral-level research training in the field (ibid, p27). Although the number of PhDs awarded in nursing (professional doctorates and traditional PhDs) increased steadily from 2003 to 2006, this was not matched by graduates going onto postdoctoral training. Tierney identified as a key issue the lack of nursing research leadership in HEIs, particularly at professorial and senior researcher levels, to lead research and to develop staff equipped to supervise research. For

some staff the demands of teaching hindered their opportunity to undertake research, highlighting the need for ring fenced time for research. She also noted that that some difficulties had been experienced in recruiting staff and students into the higher education sector because the opportunities and salaries had not much improved (ibid, p27).

NMAHP Research Unit

The Nursing, Midwifery and Allied Health Professions Research Unit (NMAHP) was set up by the Chief Scientist Office (CSO) of the Scottish Government Health Directorates, with a remit to produce the highest-quality research while embedding its activity in and for the NHS (Niven, 2010). The aim of the Unit's research is to improve outcomes for patients, with patients, practitioners and the public collaborating on the selection of research topics, the design of research studies and in disseminating findings (ibid). The Unit is based across two universities, the University of Stirling and Glasgow Caledonian University. A recent scientific review by CSO in 2010 resulted in successfully securing funding for a further five years reflecting the success of the Unit's research programmes and achievements in the 2008 RAE.

The Unit's work includes systematic reviews and developing and implementing large scale trials of complex NMAHP interventions (ibid). The Unit collaborates with academic and clinical colleagues across Scotland and internationally. It has been a leader in supporting clinical academic careers through building capacity and capability of NMAHP researchers including PhD supervision, and post graduate and early career researcher development through to the research leadership, through supervision, mentoring, and involvement in the Unit's programmes of work (ibid).

CSO Clinical Academic Research Training Opportunities

The Chief Scientist Office supports academic capacity building through Health Services and Health of the Public Research scheme, which is open to NMAHP professionals, who have been successful in obtaining a number of fellowships, offered for doctoral and post-doctoral study (CSO, 2010). It should be noted that these awards are not designed for clinical academics as they are full time research awards.

Early Clinical Career Fellowships

The Early Clinical Career Fellowships (ECCF) initiative also sits along-side initiatives to encourage the development of clinical academic careers. NHS Education Scotland led a pilot on behalf of the four UK countries, and under the Modernising Nursing Careers agenda. Early Clinical Career Fellowships aim to identify newly qualified registered nurses and midwives and encourage them to develop their careers over a three year fellowship. The participants benefit from clinical support mechanisms, action learning, part-time academic study at masters level and protected learning time (NHS Education, 2010a). Recruitment and selection for the pilot is now complete and almost 100 fellows are employed in NHS Scotland. 41 fellows commenced in 2007/2008 and 58 fellows commenced in 2008/2009. All branches of nursing and midwifery are represented and 14 out of 16 NHS Boards have

fellows in clinical practice (ibid). Fellows who complete their Masters programmes will form a pool of potential candidates to go on to do a PhD and possibly pursue a clinical academic career.

A national evaluation of the ECCF pilot commissioned by NES was undertaken by Northumbria University during 2008-2010, has now been completed (NHS Education for Scotland, 2010a). The evaluators concluded that the pilot had been effective in establishing systems, testing them out and identifying areas for improvement and they recommend that the Fellowship scheme is mainstreamed in Scotland and goes UK wide (Pearson, P. and Machin, A., 2010:55).

Scotland's Responses to the Finch Report 2007

Prior to the release of Finch Report (UKCRC, 2007) and its recommendations, Scotland had already made significant investment in nursing research and the development of clinical academic careers. A number of the Finch report recommendations had been already been undertaken through the Research Training Scheme and the Strategic Research Development initiatives as well as other initiatives discussed above. It is noted that the work on developing clinical academic careers sits with other significant initiatives that are also part of the Modernising Nursing Careers Agenda which aims to develop the nursing workforce of today and in the future (SEHD, 2006). In order to embed nursing research and clinical academic posts in Scotland there was a need for further development and Scotland's Chief Nursing Officer (CNO) (a signatory to the report along with the other CNOs in the UK) agreed to work towards flexible career structures:

“that will develop the clinical academic role – combining clinical and academic work – as the norm for those who successfully pursue a research career, rather than obliging them to pursue one role at the expense of the other” (UKCRC, 2007:6)

Scotland's 2008 Research Assessment Exercise (RAE) results

The policy and funding initiatives described above contributed significantly to the success of Scottish NMAHP research in the 2008 RAE, which McGuire (2009) noted as a key milestone on the road to clinical academic careers.

Of the 11 Scottish Schools of Nursing and Midwifery, 10 submitted to the 2008 RAE (SFC, 2008). In total, 81 staff (77.4 Full-time Equivalent staff (FTE)) were returned. Three Nursing and Midwifery Schools (44.4 FTE) returned to Units of Assessment UoA 11 (Nursing and Midwifery). Eight Schools chose to submit staff to several other RAE units of assessment thus reflecting the multidisciplinary collaborative research approach taken by some Schools of Nursing and Midwifery and regional consortia. The majority of the other submissions were to Unit of Assessment 12 (Allied Health Professions and Studies) which attracted submissions from 20.6 FTE from six schools. Scotland's performance was much better in both UoA 11 and 12 than in the 2001 RAE, it contributed significantly to a much improved UK return, with three submissions ranked in the top 10 in the UK in their respective units of assessment – including nursing and midwifery.

Scotland-wide Developments 2009-2010

During 2009-2010 a number of Scotland-wide initiatives were launched that focus on the development and implementation of clinical academic research careers (CARC). Initiatives and activities included conferences, working groups and the development of policy frameworks and tools for implementing clinical academic careers and NMAHP clinical academic careers consultation events. These initiatives and activities focused on building a future research workforce that reflects the NHS Career Framework and responds to recommendations in the Finch Report (UKCRC, 2007).

A notable highlight of the 2009 calendar was the consensus conference 'Nursing and Midwifery Education and Workforce: Towards 2020' which brought together practitioners, policy makers and academics to discuss and debate current sector issues, including the implementation of clinical academic careers. This event was hosted by NHS Education for Scotland (NES), in collaboration with others.

NMAHP work programme for Scotland 2009-2011

The NMAHP work programme for Scotland launched in 2009 is led, delivered and implemented in partnership by the Scottish Government, territorial and special NHS boards, higher education institutions and Scotland's colleges, partnership groups, public and patient involvement agencies and other key stakeholders (The Scottish Government, 2009b:32). The programme aims to "improve services, reflect patient priorities and align with national policy drivers" (p2). The research component of the work programme aims: "to ensure evidence-based, high-quality NMAHP health care provision for patients and carers by building and sustaining NMAHP research" (p34). NHS NMAHP leaders report to their respective Boards on progress on the NMAHP work programme and this is one way of monitoring progress on NMAHP research.

Curam

Curam is a Scottish Gaelic word that means "caring" and is the name of the professional magazine for NMAHPs which was launched in Spring 2009. It provides a comprehensive coverage of NMAHP policies and practices and features the importance of NMAHP research (The Scottish Government, 2009b).

Future-proofing the NMAHP Research Agenda

Niven (2009) notes that research development initiatives to date have resulted in progress being made in advancing the NMAHP evidence base. Articulating research outcomes and impact is vital so that NMAHP research receives the recognition that it deserves (p17). Niven suggests that developing the 'translational research agenda' promoted by the CSO will require partnerships between practitioners, patients and researchers and that NMAHP research is well placed to contribute to this agenda (pp17-19). She states that the challenge for the NHS is to utilise the growing research-aware and research active workforce.

Niven notes that the NMAHP consultant role within the NHS is important for strengthening the research agenda and driving it forward because consultants have research as a key part

of their remit and are well placed to integrate research into their practice. She also notes that there are growing numbers of NMAHPs who are able to utilise research to improve their patient care (ibid).

Looking to the future she encourages a Scotland-wide collaborative approach to research in order to build on past investment and strengthen infrastructure (p). Niven argues that “that research is not in the business of quick fixes, so it needs to be future proofed to address a developing agenda, not the previous one.” (p3). She also argues that NMAHP research has a key role in developing a research agenda that supports the vision for 2020 which suggests that most health care will be out of hospitals, with an emphasis on self care, whereas much of the current evidence base relates to acute and in hospital care (p3).

An example of a recent development in Clinical Academic (Research) Careers: Scheme for NMAHPs in NHS Lothian

Although there have been significant developments in NMAHP research and some progress in implementing clinical academic careers there are still challenges to overcome as outlined here. In the area of developing research awareness and research usage it was noted that NMAHP exposure to in undergraduate studies to evidence-based practice and research modules has been variable (NHS Lothian, 2010a:5). Relatively small numbers of NMAHPs are involved in post-graduate studies. NMAHPs do not have a tradition of engaging with research pertinent to their field. PhD candidates are usually self-funded and work part time, with a minority supported by research fellowships (ibid). Post-graduate study may involve a degree of sacrifice where there is salary difference between the lower paid fellowship and the higher paid NHS salary. Typically post-graduate study has been driven by individual interests and not related to clinical service priorities. On the other hand, the NHS has rarely utilised the research skills gained by staff in a strategic way, thus losing the opportunity to benefit clinical services (p5). To date many academically qualified NMAHPs have been faced with career opportunities which are either entirely clinical/managerial or entirely academic (p5). The NHS Lothian initiative described below is designed to help overcome some of these perceived barriers to the successful implementation of clinical academic research careers and further developing a culture of evidence-based practice.

The ‘Clinical Academic (Research) Careers Scheme for Nurses, Midwives and Allied Health Professionals in NHS Lothian’ was launched in May 2010. NHS Lothian and NHS Education in partnership with three universities (the University of Edinburgh, Edinburgh Napier University and Queen Margaret University) has developed a five year pilot scheme aimed at establishing research career pathways for a small number of NMAHPs. This NHS Lothian partnership model is embedded in clinical practice and involves collaborating academic partners in providing research training and supervision. Each of the partner organisations along with NHS Education for Scotland contributed funding to the scheme. The pilot will be overseen by a Project Management Group who is accountable to a wider Project Steering Group, comprising representatives from NMAHP management and consultants, local HEIs, NHS Lothian Research & Development Office, NHS Education, Continuing Professional and Practice Development Departments, and Human Resource Departments (p9).

Key features of the scheme include: establishing a total of six clinical academic research appointments, three at senior practitioner level (part time PhD focus) and three at advanced practitioner level (clinical research fellow) across three clinical demonstration areas, selected in relation to strategic research priorities, local service plans and established research groups with supportive infrastructures (ibid). Each university will register one of the three PhD students. Three NHS Lothian appointments will be given formal honorary status at Clinical Research Fellow level - one at each of the participating universities. Posts will be solely under NHS operational management arrangements. There has been an attempt to overcome employment issues by offering positions only to existing NHS employees who will remain in their clinical post for 50% of their time. The remaining 50% of their time will be available for research activities. Perceived benefits of the model include defined research outputs in terms of research training, career development and succession planning, mentoring, completion of relevant clinical research studies, publications and positive evidence-based impact on clinical service delivery. It is also expected to enhance a culture of enquiry and research-mindedness within the NMAHP professions in the region (NHS Lothian, 2010a).

In 2010 NHS Lothian and its three partner universities launched the 'Lothian Nursing, Midwifery and Allied Health Professional (NMAHP) Research Framework 2010-2015' which articulates a vision and guiding principles that underpin their collaborative approach to research and presents a five year plan (NHS Lothian, 2010b). Both the pilot and the research framework are aligned to NHS Education for Scotland national approach to NMAHP Clinical Academic Research Careers in Scotland discussed below.

Consultant Nurses: Guidance for NHS Boards 2010

Since 1999 consultant nurses have played an important role in research and have worked in diverse areas in healthcare from pain management of very sick children in Glasgow, to tackling mental health in Lothian (The Scottish Government, 2000). The consultant nurse research roles and functions (along with other Consultant NMAHPs) have been highlighted in the recent publication on Consultant Nurses, Midwives & Allied Health Professionals Guidance for NHS Boards (The Scottish Government, 2010b). It is expected that consultants will make a significant contribution to the health research agenda through such activities as: identifying gaps in the evidence base and communicating their findings to appropriate clinical, policy and research communities, undertaking own research usually in collaboration with research partners, helping to develop a research culture within the NMAHP community and gathering, collating and communicating appropriate clinical data to enable audit, service evaluation and clinical research (ibid).

Advanced Practice Nursing Research Roles: Guidance for NHS Boards 2010

Recently 'Advanced Nursing Practice Roles' Guidelines for NHS was launched (Scottish Government, 2010c). The implementation of Advanced Practice Nursing roles is linked to developments such as the NHS Scotland Career Framework (2009), the Advanced Practice Toolkit (SGHD, 2008) and the guidelines provided to NHS Boards for Consultant Nurses (Scottish Government, 2010b). The Advanced Nursing Practice Toolkit was a key

development emerging from the Modernising Nursing Careers initiative (2006). The Toolkit brings together the work on Advanced Level Practice and notes that this level of practice is above 'Senior' level and below 'Consultant' level on the NHS Career Framework. Research roles and functions for Advanced Nursing Practice roles include involvement in research; ability to implement research findings in practice including use of and development of policies/protocols and guidelines; conference presentations and publications.

Establishing a Clinical Academic Research Career (CARC) Framework and accompanying set of Principles

During 2009/2010 an NHS Education for Scotland NMAHP Clinical Academic Careers Short-Life Working Group developed a Clinical Academic Research Career (CARC) Framework and accompanying set of Principles (NHS Education for Scotland, 2010b) with the aim of providing a national structure to guide NMAHP clinical academic research collaborations. Further refinement of the initial documentation was undertaken through consultation with a number of stakeholder groups.

The "purpose of creating a national approach to NMAHP clinical academic research careers (CARC) is to strengthen research capacity and capability across NHS Board/University/Research Academic Centre partnerships through the generation and translation of research for population and patient benefit" (NHS Education for Scotland, 2010b: Appendix 1). The principles are viewed as being broadly in line with developments in other UK countries; a strong focus on NHS-academic partnerships while acknowledging multi-disciplinary collaborations; alignment with the NHS Career Framework Model and the Knowledge and Skills framework; and statements supporting practical implementation concerns such as mentoring for post holders. In establishing clinically relevant posts it is suggested that the post holder must spend at least 30% of time in practice or research, calibrated to the level on the career framework, it also recommended that they 'must have a single employment contract' (NHS Education for Scotland, 2010: Appendix 1).

Within the NMAHP Clinical Academic Research Career (CARC) Framework there are four components to the framework: 1) career progression from 5 to 9; 2) examples of research skill progressions from research awareness to research generation, dissemination and leadership are given; 3) recommended education and preparation for each level is explained; 4) provides examples of broad spheres of clinical and academic responsibilities.

Both the Clinical Academic Research Careers (CARC) framework and the principles are significant steps towards creating a national approach to NMAHP clinical academic research careers to strengthening research capacity and capability across Scotland.

Conclusion

Since the early 1990s, there appear to be three key phases of policy development influencing initiatives to support the development of nursing research and clinical academic careers for nursing. The first arose from a concern that nursing practice and education were not sufficiently underpinned by evidence and that nursing research should supply this evidence. The main barrier identified to developing nursing research was a lack of

infrastructure. The CSO Nursing Research Initiative for Scotland (later renamed as the NMAHP Research Unit) started in order to foster nursing research and the move of Schools of Nursing and Midwifery into the HEI sector brought with it expectations of increased research activity. A poor showing by Scotland in nursing UoA in the 2001 RAE raised further concerns about the quality and quantity of nursing research (SEHD, 2002). Insufficient investment was identified as a barrier to future development. The “Choices and Challenges” strategy was designed to be a key policy facilitator for development of capacity and capability (ibid, 2002).

The second phase arose in the early 2000s, when research initiatives began to include allied health professionals. Previously nursing initiatives had included midwifery. In 2003 existing research capacity and infrastructure came under close scrutiny when the strengths and weaknesses of all NMAHP disciplines in HEIs in Scotland were reviewed (Dowding Report 2003). SEHD and SHEFC used this report to inform their funding decisions to support NMAHP research schemes. Both the NMAHP Research Training Scheme (2003) which provided PhDs and post doctoral fellowships and the Strategic Research Development Initiative (2004) which funded three research consortia of universities and partner NHS Boards, significantly boosted the number of researchers and the quality and quantity of research outputs (Tierney, 2007). Also, the Nursing Research Initiative had become the Nursing, Midwifery and AHPs Research Unit, and had become more academically focused. Tierney also pointed out that a number of barriers to capacity building that had yet to be overcome including sustainable funding, heavy workloads and competing demands on staff from teaching and other responsibilities reducing the time for research and a lack of research leadership at professorial level and senior researcher level (Tierney, p27). During the second phase, although initiatives were jointly set up for NMAHPs, nursing and midwifery research achievements were often reported separately from those of AHPs, for example, in the separate Tierney reports and separate units of assessments in the 2008 RAE.

The third and current phase focuses on the new CARC NMAHP schemes which are based on policies seeking to boost nursing research by aligning nursing research closely to NHS priorities and trying to support clinical academic careers so that individuals who pursue research careers are not lost to the clinical professions (UKCRC, 2007). Some of the initiatives begun in earlier phases have continued into the third phase such as the CSO NMAHP unit. Developments in this phase include the NMAHP work programme which has as one of its foci supporting research, and the launch of Curam, an important communication tool for the Scottish Government and NHSScotland in terms of NMAHP policy and practice including research. The Lothian NHS pilot is an example of a local level scheme to facilitate CARC. NHS Education for Scotland will in the near future confirm the “National Principles for Implementing Clinical Academic Research Careers” and the “NMAHP CARC Framework”.

The empirical part of this research which focuses on three case studies of NHS Boards and their partner universities in different parts of Scotland will build on the findings of this literature review and provide a broader base to examine current barriers and facilitators to implementing sustainable clinical academic research careers.

2.3 England

This section discusses significant policy documents produced over the past decade that have laid the foundation of current English policy on the development and implementation of clinical academic nursing careers. The discussion then moves to provide two examples of recent initiatives that illustrate good practice in how to implement pathways for clinical academic nursing posts.

The Department for Health England (DH) in 2000 issued 'Towards a Strategy for Nursing and Development: Proposals for Action'. Key recommendations focused on enabling nursing expertise to inform and better influence the health research and development agenda, to strengthening the capacity in nursing to contribute to and undertake health research, and supporting capacity building in using research evidence to inform practice. The DH funds nursing research through commissioned programme, fellowships and supporting university-based centres of excellence. The Higher Education Funding Council for England (HEFCE) had identified through the 2001 RAE results that nursing was a discipline in which the research base was under-developed and subsequently allocated additional funds from its Research Capability Fund (HEFCE, 2001). Since 2002 the Research Capacity Development Programme has supported a steadily growing number of NMAHPs to undertake doctoral, post-doctoral and senior investigator research (UKCRC, 2007).

Flexible Career Paths for Nursing

A survey in 2000 conducted by the Royal College of Nursing identified concern that nursing academics faced increasingly heavy workloads and lower salary levels compared to their NHS colleagues and that they also experienced difficulties transferring between NHS and higher education institutions, for a number of reasons including lack of pension portability (Evers, 2000). Over a decade ago the Council of Deans and Heads of UK University Faculties of Nursing, Midwifery and Health Visiting highlighted the need for the National Health Service (NHS) and universities to develop more flexible career paths for nurses wishing to pursue careers in teaching or research whilst maintaining a clinical base (Butterworth et al., 2005). In 2003, the Strategic Learning and Advisory Group (StLaR), a committee of the UK Department of Health, and the Department Education and Skills (England) commissioned an investigation into what was perceived to be a growing crisis in the educator and research workforce in health, social care and education sectors. Part of this work looked at flexible career pathways for nurses involved in teaching and research. Butterworth et al. (2003, 2004) in comprehensive reports to StLaR highlighted the need for more flexible career pathways in education and research as well as the need for better reward mechanisms to protect high quality teaching and research and to ensure sustainability of a researcher workforce. The StLaR second report (2004) contained 15 recommendations designed to support a range of HR improvements including exemplars for flexible employment models for clinical academic careers for nursing. The RCN Education Taskforce (2004) highlighted similar issues for nurses wishing to undertake clinical academic positions: disparities in pay between clinical and higher education, the casualisation of employment in higher education, difficulties with pension portability, and a lack of flexible career structures (RCN, 2004). In

2007 the NHS Job Evaluation Group produced guidelines on how to deal with cross boundaries positions between health services and higher education which aimed at addressing some of the employment issues raised above (NHS Job Evaluation Group, 2007).

In December 2008, the Department of Health's National Institute for Health Research (NIHR) Co-ordinating Centre for Research Capacity Development and the Chief Nursing Office for England launched a joint initiative to support a clinical academic training pathway for nurses, midwives and allied health professions. The initiative was developed in partnership with the Economic and Social Research Council (ESRC) and the Higher Education Funding Council for England (HEFCE). The focus to date has been on investment in capacity building.

The English clinical academic training pathway consists of support for four levels of integrated training:

1. Scholarships for Masters in Research (MRes) or Masters in Clinical Research provided by HEIs chosen through a competitive process;
2. Scholarships for Doctorates by Research;
3. Funded Clinical Lectureships and post-doctoral fellowships;
4. Funded Senior Academic Clinical Lectureships (supports individuals to develop a career combining research and clinical practice).

The scheme is being implemented over a two year period Postdoctoral fellowships have also recently been advertised.

McKenna, (2009:134) commenting on this initiative, points out that it is based on mutuality, that is, there are benefits to be gained by the academy and the health services. He noted that the four schemes are underpinned by a set of principles that include: support for NMAHP careers involving research; support for a comprehensive career structure; support research training to advanced levels; integrated with clinical practice and/or postgraduate study; flexible entry and exit points; where feasible, is centred on post-holder needs; and the research focus is linked to the remit of the National Institute of Health Research. He also noted that the numbers undertaking nursing research are small in comparison to the total population of nursing and other critical consumers of research. He points out that research competency is an issue yet to be fully to be addressed. He argues that those embarking on clinical academic careers should be carefully selected to ensure they can develop the skills that will enable them to generate new knowledge to inform practice.

Kim (2009), in her paper comparing CARC for nurses in the UK with similar programmes in the United States, noted that although such initiatives are available in the USA through the National Institutes of Health, what made the UK model unique was that resources have been allocated to establish infrastructure and support clinical academic posts. She pointed out that although for decades efforts have been made to bridge the academic/clinical divide that initiatives have often faltered because of a lack of a stable infrastructure with the requisite resources in the clinical setting (p125). Kim strongly argues that the amount of funding has a major impact on the quality of nursing research.

Wider NIHR infrastructure developments in England may also encourage clinical academic careers to flourish. These structural innovations include academic health science centres, clinical research networks and collaborations for leadership in applied health research and care (CLAHRCs) (NIHR, 2008).

In 2008 nine Collaborations for Leadership in Applied Health Care Research and Care (CLAHRCs) partnership between one or more universities and partner NHS organisations were funded by NIHR. The initiative is designed to encourage high quality applied health research covering such areas as long-term health conditions and public health interventions and including nursing research. There is an emphasis on supporting translation of findings into practice within NHS England. The initiative involved significant investment £10 million of NIHR funding for each CLAHRC over five years with equal matched funding from collaborative funding bringing the total funding to £20 million. CLAHRC South Yorkshire is an example of a working CLAHRC in relation to nursing (see below).

CLAHRC South Yorkshire: Providing Opportunities for Nursing Research

CLAHRC South Yorkshire consists of two universities and nine NHS partners (including acute hospitals, primary care, mental health and Children Services (Gerrish, 2010a). The research undertaken focuses on local health concerns and is conducted by multi-disciplinary teams, located in healthcare settings involving NHS staff, some of whom hold senior clinical academic posts between universities and NHS partner organisations. CLAHRC South Yorkshire includes a specific focus on developing clinical academic pathways for nursing from MSc Clinical Research, Doctoral Fellowships through to Post-Doctoral Fellowships.

Research partnerships offer the opportunity for nurses to be research leads, co-investigators and advisors. The core team of investigators consists of a Theme Lead who holds the joint university/NHS post as Professor of Nursing. The Theme Project Manager holds a Post-Doctoral Fellowship. The Project Leads may be Post-Doctoral Fellows. The extended project team includes knowledge transfer facilitators who were frontline nurses and allied health professionals (AHPs). The Project Development Group includes core team members of CLAHRC, senior clinicians, and senior NHS managers. The Project Steering group includes frontline nurses, senior clinicians, middle managers and patients.

A system for monitoring and reflecting on research capacity-building, the Auditing Research Capacity tool (ARC), was developed for CLAHRC (Gerrish, 2010a). ARC tools are designed to help organisations identify where they are with regard to a wide range of capacity development indicators. In particular, the tools are designed to encourage self-reflection and seek to address development needs in relation to research capacity (ibid, 2010a). Tools cover: skill development (eg research training secondment, fellowships); infrastructure (eg strategy, research support, funding and resources); closeness to practice (eg involvement with practitioners/managers, research ideas generated from practice); leadership (eg support of R & D Director, Trust Board, managerial support for researchers); linkages, partnerships and collaborations (eg appointment of joint NHS/HEI positions, inter-professional involvement in, links with NIHR infra-structures); research Culture (eg achievement of high profile publications, research viewed as a core activity); and

sustainable research activity (eg level of research activity, number submissions for funding, number of successful funded applications) (ibid, 2010a).

According to Gerrish (2010a) the CLAHRC has successfully bridged the gap between research and practice through collaboration between academic researchers, practitioners and managers who were engaged in the research process and played a crucial role in the implementation of research. An important component of the project is capacity building for research knowledge translation through investing in clinical academic career development.

Gerrish (2010b:223) notes that it is too early to determine the extent to which the other eight CLAHRCs provide similar research and knowledge translation opportunities for nursing. She argues that creating these opportunities is not sufficient in itself and that academic and managerial 'buy-in' is essential to realise the full potential of CLAHRC. She points out that prior to the establishment of CLAHRC South Yorkshire, investment in nursing research infrastructure and leadership had been undertaken over ten years ago through the creation of a joint professorial post in nursing between Sheffield Teaching Hospitals and Sheffield Hallam University. This post established a good working relationship with the local Trust which led to support of the CLAHRC initiative. Currently leadership and support has come from the Trust's Chief Nurse and the Professor of Nursing who work collaboratively with senior nurse leaders in both organisations to support research and embed initiatives. Gerrish (ibid, p223) notes that it is unclear as to whether the five year core funding for CLAHRC will be extended. Given the current financial climate NHS is likely to face constrained funding (Appleby et al., 2009) consequently CLAHRCs are likely to be required to become self-sufficient; for example by securing research grants and capitalising on knowledge exchange activities, both of which also become more difficult in the future.

Making a Difference in 2009: NHS West Midlands

Another example of a response to developing clinical academic careers is in the NHS West Midlands where in January 2009 they launched "Making a Difference in 2009" aimed at developing research leadership, capability and clinical academic careers for NMAHPs. The project was designed to complement the national initiatives to build NMAHP research capacity following the Finch Report and wider NHS programmes to develop the NHS workforce and invest in leadership. The project focused on the West Midlands NMAHP Research Training Awards which consisted of five levels of competitive award specifically aimed at supporting and encouraging participation in the research fellowships available from the National Institute for Health Research (NIHR). The awards support pre-PhD training through to post-doctoral Clinical Lectureships (NHS West Midlands, 2010:19).

The University of Southampton/NHS Education South Central (NESC) Model: An Example of Implementing Clinical Academic Careers

In 2008 the University of Southampton collaborated with three local health Trusts to secure funding for three years from NESC to enable the establishment and implementation of the first phase of a clinical academic career path for nurses and allied health professionals (Latter et al., 2009). They point out that the main aim of the clinical academic career

framework is for post holders “to develop the skills experience and knowledge needed to generate and lead research that will facilitate change in practice areas” (p141). The key features of the model are:

- High level strategic commitment from the Trusts and the university senior management was essential for the initiative to proceed. (It was noted that the strategic priorities and operational processes of the Trusts and University are at times are divergent and could be a barrier to overcome).
- Familiarity with each others’ organisational priorities, clinical priorities of the Trusts and research strengths of the university academic were important for facilitating evidence into practice.
- The clinical academic posts are part of the health authority workforce strategy (therefore integrated into their policies, resource allocation and practices, at least in the short term).
- The establishment of a steering group made up of key stakeholders who had the task of overseeing the strategic direction of the project and providing advice on implementation.
- Funding was allocated to support the infrastructure, management and operational processes required for implementation. Sustainability of funding is clearly a key consideration for the future, with long term commitment needed to grow a critical mass of non-medical clinical academics.
- Post-holders are employed by their host Trust (securing an individual’s employment conditions) and contracted to spend 50% of their time in clinical practice and 50% of their time at the university.
- Post levels are postgraduate and post clinical training: Clinical band 5 and doctoral studentship awards; Clinical band 7 and postdoctoral fellowship awards; and Clinical chair.
- The Clinical chair is a professorial post providing clinical leadership focused on achieving an evidenced-based practice culture, and is expected to hold PI researcher status. Post holders are expected to use their clinical experience to identify strategically important clinical priorities, and to inform and improve the quality of their research through (a) their greater insight into clinical research questions and (b) their understanding the feasibility of research design through knowledge of patient and staff recruitment issues (ibid, 2009).
- In line with the Cooksey (2006) review of health research recommendations clinical academics are encouraged to be “knowledge transfer champions, using and disseminating evidence to influence its uptake and adoption to improve the quality and safety of patient care” (Latter et al., 2009, p141).

This model demonstrates the importance of linking the establishment of clinical academic posts for nursing to the strategic plans of partner organisations and buying in key stakeholders to oversee the project and provide advice on implementation.

There is the intention to evaluate the clinical academic initiative using a longitudinal study involving data collected using a variety of methods to gather views and experiences from a range of stakeholders (p146). It is noted that comprehensive evaluation of the posts will be important in attracting sustainable funding and establishing clinical academic careers as a mainstream option.

Latter et al. (2009:146) identified a number ongoing challenges and potential barriers to overcome:

- To resolve the issue of continuity of employment Doctoral award holders were employed by a Trust. However, there is a challenge as to which organisation is best placed to act as employer at the different levels of the scheme? For example, if the employer is a Trust than there is a need for the Trust to be flexible with clinical duties so the post holder can meet their academic requirements.
- If a clinical academic career route is mainstreamed as an option within a modernised career framework for nurses then there are potential barriers to be overcome:
 - a) Sustainability of funding, in the medium to long term further funding will needed if future tranches of clinical academic posts are to implemented.
 - b) Mainstreaming clinical academic careers will require integration of the roles into the organisational structures and processes of the partner health organisations and the university.
 - c) Gaining high level visible organisational support that enables sufficient resources and support to be allocated to ensure post holder integration into both clinical practice and academia.
 - d) Working out and agreeing on clear lines of responsibility and accountability between partner organisations to ensure the development and continuation of clinical academic posts and their inclusion within quality enhancement processes.

A recent report titled 'Front Line Care: the future of nursing and midwifery in England Report of the Prime Minister's Commission on the Future of Nursing and Midwifery in England 2010' highlighted key issues related to the development and implementation of clinical academic careers (Prime Minister's Commission, 2010). The report noted the importance of establishing and maintaining effective partnerships between the local NHS, universities and others to achieve excellence in education, training, research and innovative practice (p93). These partnerships also provide "important opportunities to rebalance the priority traditionally given to funding medical education and research, and to ensure that nursing and midwifery research and development is properly funded and utilized" (p93). The report noted that academic and clinical career structures are currently separate and there is a need to develop collaborative roles such as joint appointments and create new collaborative models to facilitate greater mobility between careers and roles in health service delivery, teaching and research (ibid). Further development of nurses' and midwives' research capacity is viewed as essential. The NIHR, CNO and ESRC initiative (2008) to support clinical academic pathways for NMAHP described above is considered to be an

important step towards the creation of a pool of nursing and midwifery research investigators. The concerns raised in the report led to the following recommendation to strengthen the integration of nursing and midwifery practice, education and research:

“That an urgent review must be conducted on how to strengthen the integration of nursing and midwifery practice, education and research; develop and sustain the educational workforce; facilitate sustainable clinical academic career pathways between the NHS, other health providers and universities; and further develop nurses’ and midwives’ research skills”
(p113)

2.4 A Brief Note on Wales

Wales has been added to this review as the authors thought it was useful to give a brief account of the response there to the Finch Report and to highlight good practice in terms of the approach in Wales to research within the consultant’s role. In response to the Finch Report (2007) recommendations, funding for clinical academic career development has been secured from three main sources: the Higher Education Funding Council for Wales, Wales Office for Research and Development, and the Department for Health and Health Professionals. The funding supports seven ‘first into research awards, 14 PhD fellowships, one post doctoral award and a career scientist (UKCRC, 2010).

Nurse Consultants

In Wales Consultant Nurses (like their counterparts in the rest of the UK) work across health and academic organisational and professional boundaries. They spend a minimum of 50% of their time working directly with patients. The post holder is responsible for developing personal practice, being involved in research and evaluation and contributing to education, training and development. Nurse consultants are very experienced registered nurses, who specialise in a particular field of healthcare. Each consultant role is very different, depending upon the needs of the employer (Consultant Nurse and Midwife CYMRU, 2009).

Lessons from Wales on the success of these posts with regard to the research and development aspect of the posts include: ensuring posts are linked to research and development strategies at Trust level; encouraging participation in Research & Development fora in Wales; encouraging identification of shortfalls in nursing research; supporting completion of MSc and PhD theses; supporting conference attendance and presentations; encouraging scholarly publications to develop the evidence base; and provide opportunities for leadership and supervision of nursing research (ibid).

2.5 Northern Ireland

This section discusses significant policy documents produced over the past decade that have laid the foundation of current Northern Ireland policy on the development and implementation of clinical academic nursing careers. The discussion moves to highlight current challenges facing Northern Ireland and lessons learned.

Shaw (2000) reported on the challenges faced in Northern Ireland of getting research into practice in nursing. Key areas for policy development that were noted include building nursing capability, capacity for research utilisation and research generation through establishing organisational structures to support and sustain nursing research. Since the early 2000s policy documents reflect these efforts (NIPEC, 2005). 'Modernising Nursing Careers: Setting the Direction' provided the context for further recognition of the potential contribution that nursing research can make to improving patient outcomes (DHSSPS, 2006). The current 'Research for Health & Wellbeing 2007-2012' strategy focuses on five strategic priorities which the Health & Social Care Research and Development (HSC R&D) Division, Public Health Agency is responsible for. They are: developing and enabling a research infrastructure; building research capacity; funding; supporting innovation; and ensuring patient and public involvement. The HSC R&D remit includes funding nursing research and supporting clinical academic careers for nursing (HSC R&D, 2010).

In 2009 HSC R&D and the Northern Ireland Chief Nursing Officer (CNO) began discussions on the implementation in Northern Ireland of the Finch report recommendations. HSC R&D established a Clinical Academic Training Pathways project team to develop a 'Clinical Academic Pathway for Nurses, Midwives and AHP in Northern Ireland' strategy. The document has gone through an extensive consultation process and work is currently going through the project committee structures. There is growing concern that post 2010 elections severe budget cuts may result in plans to fund the supporting research opportunities may be put on hold.

Bailie and Armstrong (2009) noted that challenges in developing the Clinical Academic Training (CAT) Pathway in Northern Ireland include: to establish employment contracts that recognise research workload; to encourage attitudinal change and the development of a supportive culture within HSC to allow staff to undertake research; and to support post-doctoral research activity.

In 2010, a Northern Ireland Strategy for Nursing and Midwifery 2010-2015 was published. The strategy is the culmination of work undertaken in response to Modernising Nursing Careers (2006), which included a series of workshops held in August 2009 and current work undertaken in the Midwifery 2010 initiative (DHSSPS, 2010). The strategy fits in with the ambitions of the Public Health Agency, Health and Social Care Board and the Patient and Client Council established in 2009 to significantly improve the health and well being of the people in Northern Ireland. Within this policy context, the translation of nursing research into practice is encouraged. Northern Ireland HSC Trusts have strategic themes that encompass R&D, research governance structures and have leadership for R & D through the establishment of joint appointments (DHSSPS, 2010).

Currently HSC R&D funds Masters, PhDs and Post Doctoral Fellowships for health professionals, including nurses, through the five HSC Trusts that cover Northern Ireland. HSC R&D Doctoral Fellowship award holders are employed by the Trusts and are released either part time or full time depending on their circumstances (CNAC R & D, 2010). There are also a number of nurses who self-fund their PhDs. There is a growing research culture and investment has resulted in a substantial cohort of PhDs. However, there is a lack of post-

doctoral posts in clinical practice, and few nursing academic have attracted funding as principal investigators (PIs) (ibid). There are a limited number of joint appointments and this has meant that some PhD graduates have been forced to make a choice between the HSC and the academy (ibid).

Northern Ireland Lessons Learned (Central Nurse Advisory Committee Research and Development (CNAC R &D, 2010))

The development of clinical academic careers has been facilitated through collaboration between the HSC and HEIs with emphasis be placed on providing strong leadership based on joint appointments at senior levels and endorsement and support from senior managers in Trusts. There has been a focus on capacity building through allocating funding to succession planning with a strong emphasis on PhD fellowships and increasing the number of post doctoral positions. There is increasing pressure being placed on researchers to demonstrate the impact of their research and on service to implement findings. A way forward on this matter is to involve managers and frontline nurses in research teams to help facilitate the translation of research findings. Crucial to the success of clinical academic careers is linking outcomes to the strategic plans of the HSC Trusts and the HEIs (CNAC R &D, 2010).

2.6 Australia

Australia

This section explores the issues associated with implementing and sustaining faculty practice in Australia. The discussion begins with the concept of faculty practice and notes the advantages and disadvantages. Discussion moves to examine joint appointments and highlights issues of role strain and conflict in both the academic and clinical settings. The issues associated with conducting and utilising nursing research are discussed.

In Australia, the term 'faculty practice' refers to clinical practice undertaken by a university academic. Faculty practice was established in the late 1980s at Deakin University where nursing academics had the requirement to undertake faculty practice written into their employment contracts. This led to growth in the number of Schools of Nursing that have faculty practice policies in place (Holmes, 2005). Despite supposed widespread encouragement by universities for nursing academic staff to undertake faculty practice, it is not usually written into their employment agreements, nor is it factored into their workloads. It seems that small numbers of nursing academics engage in faculty practice, usually for up to two to four weeks. In a few universities academics undertake clinical practice at weekends or engage in self-initiated casual shifts in local health services (ibid).

Benefits of Faculty Practice

Some of the key benefits of faculty practice are said to include:

- academics are able to keep up to date with current clinical developments;
- academics having an opportunity to conduct research in a clinical setting;

- the university, the School of Nursing and the academic staff are seen to be contributing to the health and well being of the community (Rudy et al., 1995).

However, Holmes (2005) challenges such assertions, argued that the perceived benefits are 'personal accounts and subjective impressions' (p27).

The following problems in establishing faculty practice (FP) have been identified in the literature:

- The clinical setting remains ideologically and attitudinally separate from the university and is often not open to change and innovation (Holmes, 2005);
- The university may be unwilling to release staff for FP, because of wider issues affecting it such as the university downsizing and staff shortages. McMurray (2003) considers this to be the main impediment to making FP an expectation in Australia;
- The amount of time spent by an academic in clinical practice diverts resources away from the university; the issue of compensation from healthcare partners has yet to be addressed (Holmes, 2005);
- Individual nurse academics themselves may see faculty practice as a burden leading to excessive and unsustainable workloads (Daly, 2003);
- Nursing academics are tied into producing research and other scholarly outputs, and to bringing income into the university; nursing under-performs in these areas (Holmes, 2005);
- Nursing academics generally have not been able to demonstrate sufficient benefits from their faculty practice consequently it cannot be justified in terms of the costs and the competing demands (Holmes, 2005);
- Daly (2003) noted problems to be resolved with the administration and regulation of faculty practice, such as establishing fair staff appraisals with regard to both academic and clinical roles, clinical supervision and funding indemnity insurance.

Joint Appointments

Happell (2005) noted that Australian universities and health partners have invested in the establishment of joint clinical academic positions and clinical professorial positions with the intention of bridging the gap between the tertiary sector and clinical service. Joint appointments have a variety of job titles, including Lecturer-Practitioner and Practice Dean. Senior joint appointments include Clinical chairs and Clinical Professors, are often funded jointly by the university and a local health organisation. They have been endorsed by key stakeholders such as Royal College of Nursing Australia and State Health Departments (Holmes, 2005).

There is considerable literature about the benefits of joint appointments covering clinical practice, education, research and management (Ogilvie et al., 2004). Key benefits include:

- faculty influence on nursing increases (Ogilvie et al., 2004);
- faculty self-confidence, nursing skills and credibility are enhanced (Minarik, 1990);

- opportunities to engage in research, publish and present at conferences are more available (Minarik, 1990);
- increased numbers of practice-based research studies (Acorn, 1990);
- integration of theory and practice into the nursing program (Ogilvie et al., 2004);
- enhanced patient care (Acorn, 1990; Arpin, 1981).

As with the faculty practice issue, Holmes (2005), considers the benefits listed above to be based more on author's impressions rather than robust research.

Disadvantages of joint appointments include:

- role ambiguity and/or conflict (Ogilvie et al., 2004; Salvoni, 2001);
- differing role expectations between employers (Fairbrother and Mathers, 2004);
- difficulties with dual accountability (also Fairbrother and Mathers, 2004; Salvoni, 2001); time constraints/workload (also Lathlean, 2007; Salvoni, 2001);
- funding problems (also Dunn and Yates, 2000); staff lack of understanding of joint appointments and responsibilities (also Dunn and Yates, 2000; Woodward et al., 2007).

Honorary or Adjunct Appointments

Just, Adams, and De Young (1989) note other models such as honorary, or adjunct appointments are focused on maintaining clinical skills. Acorn (1991) noted that academic staff can undertake work in private practices to inform their academic work. Honorary, or adjunct appointments, are also well known. This kind of appointment may involve a clinician in an honorary lectureship or an academic in an honorary clinical position. These appointments provide a person with access to facilities and the opportunity to exercise different skills, the principle benefit being collegial and professional (Holmes, 2005).

Role Strain and Conflict in the Academy

A certain amount of Australian literature was focused on role strain and role conflict. Happell (2005) contends that nurses employed within an academic institution are under pressure to conform to the requirements of the academy and that this is likely to take precedence over their commitment to clinical practice. Holmes (2005) noted that faculty practice placed considerable demands on an individual's resources, time energy and enthusiasm. Some universities view faculty practice as separate from scholarship, and from their core business, and academics extending their role to encompass clinical practice may do so without recognition from the university, and may be disadvantaged when it comes to performance review (Dracup, 2004; Holmes, 2005).

Some other challenges faced by nursing clinical academics include: differing key performance indicators between universities and local healthcare providers and a lack of research capacity strategies; lack of funding, lack of time to perform research, and lack of appropriate research skills (Green et al., 2006; Parkin and Bullock, 2005). Nurse academics, like all other academics, are expected to 'publish or perish' (Cleary and Walter, 2004). Happell (2002) suggests that the pressure to produce a number of publications may be more

significant than the relevance of such publications to the clinical practice. Holmes (2005) suggest that there is a widespread feeling among nurses in the academy that they are undervalued or even exploited within the university and also that the constant attention in the literature to the theory/practice gap seems excessive and disproportionate to other comparable professions.

Role Strain and Conflict in Clinical Practice

For clinical nurses, high workloads, poor knowledge and lack of research skills have been identified as barriers to undertaking research (Hutchinson and Johnston, 2004; Parahoo, 2000). Clinical Nurses face significant challenges in their work such as the need to become more productive despite a decrease in resources, greater patient acuity and an ongoing shortage of adequately skilled and experienced staff (Clinton and Hazelton, 2000; Happell, 2002). Happell (2002) suggests that in the face of this demanding environment it is not surprising that nurse clinicians find it difficult to consider the significance of research to their practice. Different attitudes to research held by academics and clinicians may exacerbate the divide. For example, academics complain that clinicians do not use research to inform their practice and clinicians believe that academics are out of touch with contemporary clinical practice (ibid).

Australian nursing, rather than developing a partnership model appears to have developed a parallel process between the academy and clinical practice (Happell, 2002). A number of studies demonstrate that robust partnerships between the academy and practice have not developed as was first anticipated. For joint clinical-academic positions, the results have been variable (Downie, et al., 2001; Dunn and Yates, 2000; Ogilvie et al., 2004; Salvoni, 2001). Even where research evidence supported the value of a joint appointment, the initiative was terminated, demonstrating how vulnerable such positions can be and that funding organisations may not appreciate the value of nursing research (Ogilvie et al., 2004).

Academic–Clinical Divide

A number of studies have identified significant cultural differences between health organisations and universities that are not easily overcome and affect the ability to successfully implement clinical academic post for nursing (Beitz and Heinzer, 2000; Happell, 2005; Holmes, 2005; Dunn and Yates, 2000; Ogilvie et al., 2004). Holmes (2005:19) noted ‘the problematic role of clinical practice in the role expectations and values of the university system’. The Council of Deans and Midwifery Australia and New Zealand noted that there are significant challenges associated with “the legal and contractual issues, cost considerations, staff workloads, competency and supervision, institutional objectives and scholarship” (Council of Deans and Midwifery Australia and New Zealand, 2006:8).

Conducting Research and Research Utilisation

From the mid 1990s there was a substantial increase in nursing practice research (Hicks, 1996). Wright et al., (1996) suggest that nursing research has had a limited impact on the clinical field because of nurses’ reluctance to become involved in conducting research or

implementing research findings into their practice, even when studies clearly demonstrated benefits such as more cost-effective nursing and improved health outcomes for patients. Happell (2005) suggests that the failure of nursing to embrace research as an integral part of practice can be at least partially attributed to the policies of health care organisations because they have tended not to require nurses to be involved with research and have not established nursing research policies. A survey of healthcare organisations conducted in Victoria in 2003 highlighted that although healthcare organisations indicated a strong interest in research and research utilisation, and a willingness to provide organisational support, the majority of organisations had not integrated nursing research into their strategic plans or employed nurses in dedicated research positions (Happell, Johnston and Pinikahana, 2003).

Other studies that have examined why it is that nurses do not engage in research or actively utilise it within their practice have identified some common themes such as: insufficient time due to increasingly heavy workloads; lack of co-operation from other health professionals; lack of autonomy for nursing; negative attitudes from nursing colleagues and a general lack of interest; insufficient knowledge, skills and confidence in how to conduct research; and the difficulty of accessing research findings in a meaningful way (Council of Deans and Midwifery Australia and New Zealand, 2006, Dunn et al., 1998; Ersser, 2002; Hutchinson and Johnson, 2004; Parahoo 2000).

Strategies for fostering evidence-based practice

Over many years numerous strategies have been developed to foster research and evidence-based practice in the clinical setting such as the appointment of nursing directors with specific responsibility for research, researchers who are based in a university and hold research fellow status (Gattuso et al., 2007) and professorial chairs which are mostly designed to achieve effective partnerships between the academy and the health sector (Dunn and Yates, 2000). The research collaboration between nurse researchers and nurse clinicians was seen a useful strategy for generating clinically relevant nursing knowledge (Kotzer, 2000) and Brown and Sorrel (2009) suggest this should be mandatory rather than optional practice.

PhD qualified academic staff

Schools of nursing are under increasing pressure to demonstrate successful research performance and are keen to recruit staff with doctoral qualifications (Jackson, 2008; Priest et al., 2009). The nursing academic workforce (involved in teaching, research and in some cases faculty practice) is aging and this has raised questions of sustainability of programmes and this in turn put pressure on universities to produce large numbers of doctoral graduates in a relatively short time period of time to meet the demands of the academy (Jackson et al., 2010).

Research funding for capacity building

Australian nursing research is growing, particularly the body of knowledge on the practice of nursing and clinical research, however, the overall contribution to improving health systems

remains limited (New South Wales Nurses Association, 2008). Nursing research struggles to attract funding in a competitive environment, from either traditional sources within the higher education sector (ibid). Future targeted investment by the Australian Government is seen as the way forward to build research capacity, increase the level of post-graduate scholarship, expand nursing research grants and develop cooperative research centres for nursing (ibid).

The South Australia Branch of the Australian Nursing Federation (ANF) (2009) makes a similar call for funding to build capacity as their counterparts discussed above. They noted that traditionally health and medical research funds have gone almost entirely to medical research and they argue that it is important that government invest more in the expansion of nursing and midwifery research. They also argue for provision of funds for time for nurses and midwives to conduct research incidental to their clinical, education or managerial roles. The ANF argues that expansion of targeted (and competitive) funding for nursing would deliver significant benefits of client care and for the national and international standing of the professions in South Australia which would assist in the marketing of employment opportunities there.

In 2010 the Royal College of Nursing, Australia (RCNA) lobbied the Federal Government for targeted investment in nursing and midwifery research (RCNA, 2010). They also argued for the development of a national repository to encourage sharing of expertise, reflective practice and continual improvement (ibid).

2.7 United States

This section explores the issues associated with implementing and sustaining faculty practice in the United States. The discussion begins with exploring how faculty practice operates and then moves to examine various models. The issues associated with conducting and utilising nursing research are discussed.

The American Association of Colleges of Nursing (AACN) has over the past three decades supported the development of strategic academic-clinical services partnerships as a means of creating a well-educated nursing workforce capable of working in university hospital settings (AACN, 2003, 2009). Many university-health services collaborative arrangements have been established across the United States, with the University of Pennsylvania Nursing School recognised as a national leader. It has consultative arrangements with many other universities in the country (Lang et al., 2004). This section reviews a variety of models that have been developed to facilitate the implementation of clinical academic careers. This section also focuses on the development of nursing research, including the influence of the National Institute for Nursing Research (NINR).

Faculty Nurses in Healthcare Settings

For over three decades American university nursing departments have engaged in faculty practice, where nursing faculty undertake work in health care settings outside the educational institution (Langan, 2003, p77). The university provides clinical healthcare

services by drawing on academic staff from medical, nursing and healthcare disciplines. The healthcare services vary from wholly owned university facilities to partnership arrangements between a university school and external funders and organisations. The healthcare services offered by universities include highly specialised nursing centres, provided through a mix of on and off campus sites (National League of Nursing, 1989). Services are often targeted at deserving populations at favourable rates and provide research opportunities and learning context for students (Zacharia and Lundeen, 1997). They also provide opportunities for the development of clinical innovation and leadership skills (Lang, Evans, and Swan, 2002).

Faculty practice covers all aspects of healthcare roles such as clinician, consultant, researcher, educator, and administrator. There is a widely held belief that teaching, research, clinical practice and service must be closely integrated to achieve excellence (Saxe, Burgel, Stringari-Murray, et al., 2004, p167). The key elements of faculty practice are: (a) formal contractual arrangements with clearly defined focus and boundaries; (b) teaching, clinical practice, service and research activities centred on patient care; (c) clinical scholarship as the key outcome; (d) provision of additional resources above the teaching allocation (Saxe, Burgel, Stringari-Murray, et al., 2004, pp 166-167).

Models for Clinical Academic Posts

A number of models have been developed in the United States for bringing together the academy and nursing practice. The models range from shared leadership/administration in university and healthcare settings, joint appointments, and entrepreneurial models where fees are charges for private consultations, separate from university contracts. The *unification model*, where the Head of the School of Nursing is the Director of Nursing for the clinical agency run by the university and staffed by nursing academics is an example of shared leadership and administration (eg Hutelymer and Donnelly, 1996; Potash and Taylor, 1993; Saxe, Burgel, Stringari-Murray et al., 2004). The *Collaboration, or joint appointment model* involves agreements between the university and the clinical service about time commitments, mutual responsibilities and sharing of costs (Hutelymer and Donnelly, 1996; Potash and Taylor, 1993; Saxe, Burgel, Stringari-Murray et al., 2004). The *dyad model* is based on shared services and joint research, education and clinical practice, with no financial exchange, as each organisation absorbs its own costs (eg Hutelymer and Donnelly, 1996; Potash and Taylor, 1993). A popular model is the *integration or nursing centre model* where academic staff and graduate students share patient care responsibilities (Saxe, Burgel, Stringari-Murray et al., 2004). Both the *entrepreneurial or linkage model*, where academics develop their own clinical practice roles, and the *private practice model* rely on individual academic's self-motivation (eg Hutelymer and Donnelly, 1996; Potash and Taylor, 1993). Clearly some of these models are only possible in countries such as those with private healthcare systems.

Saxe, Burgel, Stringari-Murray et al. (2004, p183) note the main challenges facing faculty practice are:

- limited time for faculty to fulfill their obligations in the areas of practice, teaching and scholarship;
- limited funding opportunities for faculty practice (especially from core funding);
- limited recognition for faculty practice within the context of promotion and tenure; and
- difficulties posed by financial and contractual arrangements.

They noted that, historically, faculty practice arrangements developed from individual academic interests or a specialist program perspective rather than the wider university perspective. They recommend it be developed within the universities' broader mission and strategic plan and operations.

Nursing Research

Nursing research has been increasingly prominent over the past thirty years. Initially emphasis was placed on the development of PhD programs and post-doctoral fellowships and, more recently, on the establishment of the research doctorate the Doctor of Nursing Science. Nurses with PhDs have focused on building the nursing discipline's knowledge base with support from the National Institutes of Health as a key funder. Crucial to the development of nursing research was the establishment in 1987 of the National Centre for Nursing, which became the National Institute of Nursing Research (NINR), in the National Institutes of Health (Marion et al., 2003).

The Doctor of Nursing Practice has been developed as a professional doctorate to meet the demands for advanced clinical practice and education, and in some universities it includes a focus on applied research. This development is not without controversy (American Association of Colleges of Nursing, 2009).

Academic nursing research has led the way over nursing research based in clinical settings, the availability of resources and leadership being key factors in its success (Kim, 2009). However, it is argued that nurse researchers with doctorates practising in clinical settings is important for patient-care based clinical research (ibid, 2009).

Nursing research is an emerging science, complex in nature, has relied initially on other disciplines for peer review. The United States tackled the issue of funding nursing research by creating a separate funding agency and appointing nurse reviewers to its panel and this proved an effective way to promote nurse research.

Kim (2009) concludes that leadership and support for nursing research at top levels is crucial for development; the cooperation between chief nursing officer, chief medical officer and hospital chief executive is crucial to successful clinical nursing research in clinical settings.

Office of Nursing Services (ONS), United States Department of Veteran Affairs: An Example of a Comprehensive Approach to Nursing Research and Career Development 2010

The ONS Veteran Affairs (VA) nursing research aims to promote "health and excellence in healthcare for veterans and the nation" as well as "to build capacity for high quality research that informs evidence-based nursing research and builds nursing science" (US Department of Veteran Affairs, 2010:1). The Career Development Award (CDA) programme

is open to all researchers who hold MDs or PhDs, who have the requisite experience and training and are nominated by their VA facility and have identified a mentor. The CDA has three levels of award covering the following research areas: biomedical laboratory, clinical science, health services and rehabilitation services. The CDA levels include: CDA-1 entry level where the focus is on mentoring junior researchers, gaining qualifications and establishing and following a career development plan; CDA-2 is a mid-level programme who are required to specify their career development plans research project over 3-5 year period; CDEA is a career development enhancement award for senior VA scientists. The award provides up to six months salary for scientists to learn new research skills. The CDA is open to both non clinicians and clinicians with leave options available to full-time nurses (based on their length of service) to take leave to undertake research.

In addition to the CDA programme there are other initiatives such as VA Nurse Scientist Toolkit which provides practical support for the role. Nurse Scientists are doctorally prepared nurses who conduct research leading to healthcare improvements (ibid). The VA Nurse Investigator Directory has been established to assist networking among nurse scientists and access to mentors. The Nursing Research Initiative (NRI) is aimed at both new and experienced nurse investigators who are encouraged to undertake research aimed at high priority health issues for veterans with an emphasis on patient care (ibid).

2.8 Canada

This section explores the issues associated with implementing and sustaining clinical academic joint appointments in Canada. The discussion begins with a review of how joint appointments operate and then moves to examine various models. The issues associated with conducting and utilising nursing research are discussed.

Joint Appointments

In Canada joint appointments are the main model. These have been based on formal agreements between the university and health services (eg hospitals, community healthcare clinics and homecare), where nurses employed by a health service provide an agreed number of days at the university, where they are involved in teaching and/or research. In the late 1980s there were a small number of joint appointments (Acorn, 1988) and by the late 1990s these had become more common. Strang et al. (1999) put forward the view of clinical academics as brokers, interpreting the cultures of each organisation and facilitating collaborative initiatives.

Public health has a different model, where nurses provide clinical instruction and conduct research in the same facility in which they carry out their clinical duties. Benefits include: retention of graduates and opportunity for access to research support (Buchan et al., 2008).

Role Conflict and Role Ambiguity

Acorn (1991) examined perceptions of role conflict and role ambiguity experienced by nurse faculty in joint academic-clinical appointments compared to traditional nurse faculty in

Canada. The study examined social support, job satisfaction, scholarly productivity and propensity to leave the joint appointment. Over a hundred faculty took part in the study which focused on five Canadian university nursing faculties that had a high proportion of joint academic-clinical appointees. Findings indicated that clinical academics did differ from traditional faculty in levels of role conflict and role ambiguity, scholarly productivity levels, or job satisfaction. Acorn noted that within the joint-appointee group role conflict was higher than role ambiguity both had an adverse effect on job satisfaction and influenced intent to leave. Social support was found to have a buffering effect on role conflict.

Building Research Capacity

Canadian nursing research dates back to the late 1970s, with a key milestone being the establishment of first Centre for Nursing Research, established at McGill University in 1979 and supported by funding from Health and Welfare Canada. Initial national five year funding investment in 1980 by the Medical Research Council (MRC) and National Health Research stimulated research capacity in nursing by providing salaries, research expenses for nurse academics (Gottlieb, 2009). In the early days of establishing PhD programs, medical dominance was considered a significant barrier because nursing academics and administrators had to convince the medical establishment of the legitimacy of nursing research (Gottlieb, 2009). A major breakthrough for nurses seeking doctoral training was eventually securing relatively higher levels of salary support, which had been the domain of medicine, dentistry and veterinary sciences. The higher level of funding meant a PhD became a viable option for those several years into their nursing careers (Clarke, 2009).

Canada began its Doctoral programs in nursing in the 1990s and there are currently 15 PhD programs offered, with PhD enrolments having increased exponentially over the decade. Financial support for both doctoral and post-doctoral fellowships has been a crucial part of research capacity and career development (ME Jeans and Associates and the Canadian Association of School of Nursing, 2008). As a consequence of expansion, the numbers of grants to nurses as principal investigators from the Canadian Institutes of Health Research (CIHR) have steadily increased since 2000 despite the fact that nursing does not have its own institute within CIHR (ibid, 2008).

Leadership for nursing research is seen as important with the number of research chairs steadily rising. The University of Toronto has the highest number chairs in nursing of all the universities with nine in total, sponsored mainly by endowments. In 2008, 'Nursing Research in Canada: a Status Report' emphasized that nursing research has the capacity to contribute to addressing priority issues in health and healthcare (ME Jeans and Associates and the Canadian Association of School of Nursing, 2008: 20).

A potential barrier to nurses obtaining doctoral fellowships is the requirement by most funding agencies that applicants must enrol in full time study. This requirement may present an obstacle to those nurses with family responsibilities and/or who wish to do part time clinical practice (ibid, 2008). For nurses wishing to undertake post-doctoral level study the requirement by most funding agencies that post holders do not to hold a faculty post may be a barrier. Currently most post-doctoral fellows hold faculty positions. CHSRF recently

waived this requirement. It was noted that flexibility will be important in order to facilitate opportunities for future career scientists (ibid).

ME Jeans et al., noted that: a) nursing databases should be more user friendly and incentives put in place to encourage researchers to input their data; b) strategies and strategic funding needs to be put in place to support postdoctoral fellows; c) there is a shortage of faculty prepared to supervise doctoral students; d). funding should be made available to encourage retired successful nurse researchers to assist on a part time basis with doctoral student supervision; strategies should be developed to strengthen the documentation of the impact of nursing research on policy, practice and patient outcomes (ibid).

Coyte, Wise, and Motiwaia (2008) conducted an evaluation of the Nursing Research Fund (NRF) which was established in 1999 to build nursing-related research capacity for Canada. The Canadian Federal Government provided a \$25 million endowment specifically targeted towards nursing research which was administered by the Canadian Health Services Research Foundation (CHSRF) over 10 years. The NRF had five key objectives: 1) create nursing research capacity; 2) to expand nursing research output; 3) to create capacity to use research; 4) to expand the actual use of nursing research; and 5) to link research supply and research use (ibid:3). To meet the objectives four programmes areas were developed: 1) Nursing Research Chairs 2) Training Awards (career reorientation awards, post-doctoral fellowships and student awards; 3) Nursing Policy and Management and Nursing Care Issues and 4) Knowledge Dissemination Activities (p2). The report noted that the NRF was most successful in objectives 1 (research capacity), 2 (training awards), and 5 bridging the gap between researchers and users of research (ibid: 4). It was noted that more emphasis was needed on the use of research linked to the knowledge dissemination programme. The Evaluators found that the NRF had mostly been successful in meeting its objectives and after consultation with nursing stakeholders, they recommended that there be: more junior level training awards; more funding for smaller institutions to establish research programmes; more funds for clinical nursing research and that a 25 year vision and commitment to the second phase of NRF.

Other significant funders of nursing research include: the Canadian Association for Nursing Research; Canadian Nurses Foundation; and the National Institute of Nursing Research and charitable organisations (disease related) such as Heart and Stroke Foundation of Canada and the National Cancer Institute of Canada (ME Jeans and Associates and the Canadian Association of School of Nursing, 2008).

Over the years significant lobbying for funding has had a positive impact on the number of clinical academic researchers, the amount of funding available to research programmes and for capacity development. This has led to nursing being competitive in the wider research community and nurse academics holding important leadership roles (Gottlieb, 2009).

Initiative to Enhance Nursing Research Careers

In the late 1990s, the Canadian Health Services Research Foundation (CHSRF) and the Canadian Institutes of Health Research (CIHR) committed funding to address the shortage of applied health and nursing services researchers in Canada (CHSRF, 2008). The CHSRF and the CIHR jointly designed the Capacity for Applied and Developmental Research and Evaluation program (CADRE) which aimed at the developing careers in applied health services and nursing research. Funding for the program consists of equal contributions from CIHR and CHSRF (part of which comes from the Nursing Research Fund discussed above). The CADRE has interlinking components, including 10 year awards for education and mentoring chairs, Regional Training Centres (RTC) were established with the mandate to offer graduate level training in applied health and nursing services research and annual awards for post-doctoral training and career reorientation (this latter award was suspended in 2007 because it was no longer successful in attracting applicants). Five university consortia across Canada run the RCTs following a competition in which requirements were: multi sites, interdisciplinarity, mandatory establishment of the academy – health system manager interactions, knowledge transfer and exchange.

The CADRE program is regionally based and designed to meet both short and long term development goals for building health and nursing services research capacity. Conrad (2008) noted that the CADRE programs focus on fostering planned interactions between academic researchers and decision makers such as health system managers and policy makers. This approach was based on Lomas (2000) 'linkage and exchange' approach which is similar to the UK knowledge exchange concept. A national centre for knowledge exchange was established in 2001 and existed until 2006 when funding concluded.

Conrad (2008) noted that strong leadership is required when investing in the development of health and nursing services research capacity and that CADRE success depended on institutions with strong research milieu, where emphasis is placed on knowledge transfer and use.

The Canadian Association of Schools of Nursing (CASN) 2010

The Canadian Association of Schools of Nursing (CASN) also provides significant support for nursing research and the training of nurse researchers across Canada (CASN, 2010:1). CASN aims to: encourage and improve the quality of nursing research; promote research findings and support the development of research leaders (ibid). They have several initiatives that support nursing research including establishing research databases (this database was used extensively by Coyte, Wise, and Motiwaia in their evaluation of NRF in 2008), commissioned research projects, promotion of funding opportunities and holding research events (ibid).

Overall initiatives such as the Nursing Research Fund, charitable organisations (disease related) research funds for nursing and other funders such as nursing associations and foundations appear to be the key facilitators of nursing research and capacity development in Canada.

3. Commonalties across Borders

The literature reviewed suggests that, globally, a plethora of policies and strategies have been developed focused on enabling nursing expertise to better inform and influence national health agendas through strengthening capacity to undertake research and to use evidence to inform practice, in order to improve outcomes for patients. Funding support has come for nursing through government agencies, health departments, trusts, research funding bodies, endowments and HEIs and support made available for growing numbers of PhD scholarships, post-doctoral fellowships through to clinical chairs. Throughout this process, the emphasis on clinical academic positions, as opposed to traditional nursing faculty, has been present though variable.

The present economic climate may lead to constrained funding, perhaps especially in the UK, and this may challenge the sustainability of programmes, pilots and new initiatives that support nursing research and clinical academic careers. Highlighting the relevance of nursing research to national health agendas and increasing the visibility and understanding of the impact of nursing research on patient outcomes will continue to be important work for nursing academic leaders, nursing clinical leaders, and the emerging body of nursing clinical academics.

3.1 Working Across Boundaries

Clinical academic posts have been positioned as weaving together nursing practice, education and research, potentially achieving excellence in all three (Ogilvie et al., 2004). The organisational and individual challenges in establishing and maintaining these positions have been well documented over the years by international commentators, although much of this documentation lacks empirical evidence (see Holmes, 2005, Dunn and Yates, 2000; Salvoni, 2001). Numerous commentators have suggested 'lessons to be learnt' for maximising the opportunity for success of clinical academic posts (see Beitz and Heinzer, 2000; Latter et. al., 2009; McKenna and Roberts, 1999, Saxe, Burgel, Collins-Bride, et al., 2004).

Larabee (2001) provides a useful summary of success factors necessary for clinical academic posts: a) *envisioning*: flexible roles are designed by leaders in partner organisations with conceptual overlap and provision of necessary resources including operational and HR support; b) *executing*: specific objectives are agreed for each site in line with their strategic priorities, appointees' orientation and immersion in both organisations so appointee becomes an 'insider' in both; c) *evaluating*: leaders at partner sites consider the extent to which site-specific and site-shared objectives were achieved and the extent to which the appointee has achieved their professional goals; d) *evolving*: leaders and appointee periodically review position to consider the value added to achieving partner organisation's goals through the appointment.

Work undertaken in the UK by the NHS Staff Council Job Evaluation Group (JEG) is a good example of working together with HEIs to come up with advice on jobs which cross boundaries between the health service and higher education (NHS JEG, 2007).

3.2 Leadership for Clinical Academic Posts

The literature clearly establishes that leadership roles are crucial to developing and implementing clinical academic careers structures (Conrad, 2008; Kim, 2009). One of the main drivers behind the international trend to establish clinical chairs has been the desire to improve the quality of patient healthcare by strengthening the links between the academy and health services at senior levels. Clinical chairs advance both research and effective clinical delivery as well as contributing to ensuring nursing education is relevant to patient needs. When establishing clinical chairs, as well as other clinical academic posts, the literature suggests that it is essential that both the academy and service sectors clearly understand the nature of these roles and the outcomes that can be expected (Dignam, Honeyfield and Cooney, 2000).

3.3 Roles and Responsibilities of Clinical Chairs

It is argued that the role of the clinical professorial chair is to focus on achieving an evidence-based practice in a clinical area, fostering research proposal writing, acquiring research funding, conducting clinically focused research studies, teaching, student supervision, examination of theses, academic writing and publishing of scholarly work, and engaging in administration and management tasks and public speaking (Lantz, Reed and Lewkowitz, 1994; Latter et al., 2009; Lumby, 1996).

Potential Outcomes of Clinical Chairs

A number of international commentators have identified significant benefits to establishing clinical chairs most of which extend to clinical academic posts generally. These benefits include:

- providing research supervision and facilitating improved access and support to external research project funding;
- providing a research support infrastructure for staff in the practice setting;
- involving practice in research and professional academic activities including writing for publication, presenting at seminars and conferences and preparing submissions on professional issues;
- disseminating research outcomes so they are readily available for practitioners and/or the public;
- teaching in both the educational and service provision settings;
- advising service sector nursing leadership about research to help encourage a best practice culture;
- informing the organization's leadership of developments within nursing nationally and internationally;
- increasing collaborative relationship with the service provider;
- encouraging/facilitating an evidence-based practice approach to policy and procedures.

(Elliot, 1997; Tamlyn and Marrick, 1995; Donnelly, Warfel and Wolfe, 1994; Dignam, Honeyfield and Cooney, 2000)

In Scotland the establishment of clinical academic leadership at professorial levels may significantly contribute to facilitating and sustaining of clinical academic careers, as well as strongly reinforce the relevance of clinical academic posts in supporting better health and better care for patients thus contributing to the Scottish Government's agenda for a healthier Scotland. Universities associated with medical schools and their linked hospitals as part of the Scottish Academic Health Sciences Collaboration model (NES, 2009a) would provide greater opportunity for cross-disciplinary working with researchers strong in medical sciences and greater access to funding opportunities; however there might be a lessening of ability to set the agenda in terms of research priorities and research methodologies. With other universities, and nursing nested in health rather than medical research, there could be greater potential for encouragement of nursing research leadership and more openness to innovative health service research priorities and methodologies.

3.4 Partnership in Health and Higher Education

Strategic and operational priorities of universities and health entities are characterized by divergence as well as similarity. The Nuffield Trust Working Group study focused on establishing a framework for enhancing university and NHS relations and this provides an example of good practice (Nuffield Trust Working Group, 2000). Positioning health services and university medical schools as essential partners in contributing nationally to the health agenda, and acknowledging the different strategic goals of both entities, led the working group to develop a framework utilising ten principles in three key areas: strategic, operational and funding (ibid). Forging partnerships presents significant organisational challenges at the strategic level (eg aligning policies and resources) and operational level (aligning human resource issues and communication processes). Health services and HEI partnerships often require new ways of working together, such as allocating significant time and resources to setting up the posts. Research into the implementation of joint or innovative roles has highlighted the need for strong organisational commitment to establishing and sustaining roles, and clarity as to which organisation is best placed to act as employer. Cultural and organisational issues relating to power and tradition in both settings are important, and role overload can also be a barrier to the successful implementation. However, the organisational, systematic and human resource issues identified are clearly not insurmountable. With strong leadership, good planning and a clear focus strategic and operational success in establishing and implementing clinical academic positions can be achieved (Weir, 2009).

3.5 Which Model Works Best?

This report has examined models for clinical academic nursing development and posts in Scotland and elsewhere. The question is, does any one model stand out above the others? There are clear indications from the literature, but they should be interpreted in the context of the development of nursing research. Nursing research around the world has its roots in individual initiatives, particularly from nurses wanting to develop scholarly careers, as well as from pressures towards higher qualifications and research participation from nursing

faculties moving into university settings. The next stage consisted largely of attempts to build nursing research from the ground up, through capacity-building initiatives such as PhD scholarships and postdoctoral fellowships. Although these initiatives included in their rationale the desire to enhance the evidence base for nursing practice, it became clear that career paths diverged at the end of research training, leading to either a return to practice or an academic career outside practice. In some other countries, particularly in the United States, and in Canada too, significant numbers of clinical academic professorial posts became embedded earlier, for a number of reasons, not the least of which was wealth, size and different healthcare systems, including large university-medical conglomerates. Possibly, inter-country differences in the status of nursing influenced developmental pathways too. A more recent emphasis in the UK and Scotland has been a focus on clinical chairs, arising from an understanding of the need to build from the top down. This development emphasises the importance of the joint appointment model, with strong managerial support from both institutions involved. Not only do they offer the potential for strong leadership in nursing research, they avoid the pitfalls of some of the other models, notably the faculty practice model, once popular in Australia, which demonstrated that mere co-location without powerful positioning did not necessarily enhance knowledge translation. This leads to consideration of issues in relation to organisational developments that may best support such leadership roles, and to discussion of perspectives on knowledge, including organisational knowledge.

4. Perspectives from Organisational Sociology and the Sociology of Knowledge

This section of the report works from the review and discussion of the literature to contextualise the discussion in selected perspectives from a wider literature on organisations and knowledge. This discussion addresses the requirements of the research brief to:

- (a) contextualise clinical academic posts for nursing in the wider literature/research on occupational strategies, mobility and careers in the relation to contemporary developments in public sector professions;
- (b) situate these developments in relation to contemporary debates on knowledge.

There is, of course, a very substantial literature on both professionalism and knowledge, which is extensively referenced within nursing research and in the preparation of nurse professionals. This discussion is confined to approaches to knowledge and issues of 'translation' across different knowledge forms and associated practices in academic research and practice, as specified in the research brief for the review.

The overarching purpose of this discussion is to enable consideration of any contribution that these concepts might make to understanding barriers to and facilitators of clinical academic careers. These issues, along with the concepts and developments discussed in the earlier part of the review, offer resources for the further empirical investigation in the next stages of the research.

The brief and selective review that follows seeks to illuminate the issue in these ways:

- By drawing on sociological research including the literature on work, occupational mobility and the sociology of the professions, to set the issue of developing clinical academic careers in nursing in the context of contemporary occupational change;
- To situate the discussion within analyses of widespread developments in the restructuring of public sector provision, including of health provision and university based research;
- To consider the relevance to developing clinical academic careers of changes in how knowledge/evidence are understood and applied;
- Through these discussions, to identify resources for the further empirical investigation of particular opportunities and challenges experienced in promoting clinical academic careers in Scotland.

4.1 New Professionalism

Contemporary sociological approaches to professionalism are not uniform, but a key development, for this review, relates to recognition of the significance of wider processes of occupational change and restructuring of work in understanding the positioning of the

professions (Alvesson, 2001; Beck, 2000; Becker, 2002). This perspective draws on earlier scholarship that broke away from the idea of professional status as following a natural line of development, and achieved through credentialism and other, related strategies of improvement. Instead professionalism was analysed and understood as part of a continuous struggle over occupational status among different groups, constantly contested, where progress in professionalisation is closely related to the capacity of groups to mobilise resources and achieve political and public support. The concept of struggle over professional status is well-known and well-documented in both historical and contemporary approaches to the nursing profession.

This perspective on the professions, that embeds them in the landscape of work and occupations, is potentially of use to policy makers and members of groups who are seeking to mobilise resources in order to secure professional recognition and status, because it draws attention to the need for negotiation and strategic development in order to achieve and to maintain position, that is to be found across many sectors (Sennet, 2006; Williams, 2007; Green, 2006).

Such literature also reflects-and reflects on-the impact on professionalising strategies of very significant changes in the regulation and design of work since the 1980s. It is neither necessary nor possible to review these substantial changes in the space and time available here: the literature is very considerable and far from homogenous. However the remainder of the discussion of professionalism in this review is located in a framework of awareness of widespread debates about developments in the design and regulation of work across the public sector in the UK and beyond (see, for example Reed, 1997; Clarke and Newman, 1997; Mooney and Law, 2007). In summary, the increased regulation of public sector work including health care and research since the 1980s in order to achieve effectiveness and efficiency has produced strong pressures at all levels to demonstrate or evidence good performance related to patient care. This, of course, has had important positive effects, (for example in eliminating incompetence and ensuring baseline standards and common practice across provision, in disseminating good practice, and in improving patient or client power), as well as in establishing a clear strategic direction for professionalising occupations.

However it may also have brought some Mertonian 'unintended consequences' (Merton, 1936), understood by some sociologists as connected to managerialism and contributing to a 'performative' culture – that is one in which energy is devoted to following time-consuming and prescribed practices to demonstrate effectiveness. There are intense debates about the performative effects of regulation in two of the arenas – universities and hospitals/health boards – in which clinical academic careers in nursing are being developed (see, for example Lapsley, 2008; Power, 2007). Some research findings suggest that regulatory practices may have detrimental effects on autonomy and trust. They may also be potentially problematic in a further important way, in that they are sometimes found to undermine a key element of scientific knowledge production – ie the inherent self-doubt and complexity connected to reflexivity about the construction of knowledge and research agendas (Nassehi, 2007; Stehr, 1994). Nassehi and his colleagues draw attention to the ways

in which standardised procedures and the need to demonstrate successful impact may reduce the scope for researchers and clinicians to question their own procedures and open procedures and results to interrogation (Nassehi et al., 2007: 164). From this perspective, the RAE is an example of the managerial elimination of doubt and affirmation of usefulness and impact (HEFCE, 2008, ESRC, 2009a). Accordingly its effects, for example, on university research work cultures, practices and relations, especially in the applied disciplines, are not uniformly found to be positive (see for example Morley, 2003; Lucas, 2006) and the findings of such research may be relevant to strategies for the development of clinical academic careers in nursing. In some areas of applied research, while there is improvement in capacity, this may be achieved without appropriate engagement with developing research cultures and practices (McNay, 2006; Robertson and Bond, 2005). In universities the increased emphasis on 'scientised' and highly coded practices of research, and on achieving targets and benchmarks that evidence high performance, may lead to increased distance between research leaders and members of the professionalising group (Yates, 2004; Roberts, 2006). These developments may create further challenges for the leaders of developments designed to support clinical academic careers in nursing.

Summary

To summarise: careers in the public sector, including in the health professions, have become uncertain in the current context, because of change in the nature of public sector work and occupations that has gathered momentum since the 1990s in the UK. Modernisation agendas driven by technological and economic innovation have challenged traditional, relatively stable patterns of work and career progression in the public sector, and produced much more flexible and shifting work patterns, with higher degrees of risk and uncertainty, across the full range of occupations, but probably impacting most strongly of the less professionalized groups (Seddon et al., 2010). These uncertainties are likely to increase in the context of severe reductions in financial support for public sector services across the UK, following the UK government's spending review in autumn 2010.

In terms of the development of clinical academic careers in nursing, this environment may be productive, as there is an enhanced need for self-managing, strategising organisational members who take responsibility for their own development, as well as for increased capacity to act on the basis of scientifically-produced evidence. The clinical academic thus meets a recognised need, and has a clear leadership role for a group in the process of managing change. Such leaders will be aware of the possibility that, in a risky environment, established occupational groups may adopt strategies for maintaining their position, including heightened competitiveness and boundary maintenance, which may conflict with the interests of a professionalizing occupational group (Hood and Rothstein, 2001; Power, 2007).

In this context, as previous sections of the review and the developing policy in Scotland designed to support clinical academic careers in nursing demonstrates, it is vital to build formations of professionalism that seek to reduce risk through supporting and sustaining more knowledge-based practices. This move comes from within professional groups, research communities and policy-makers alike, who share concerns about the unintended

consequences of managerialism and performative work cultures and their effects across a range of public sector professions (Reed, 2007; Bottery, 2004; Cameron and Moss, 2007).

The key elements of this new professionalism are summarised by Bottery as inclusive of expertise in both knowledge and practice, of altruism in terms of orientation to client improvement, and autonomy, in relation to exercising control of practice in the professional group (Bottery, 1998). Sachs (2003) adds the need for a collective strategy that fosters collaborative working and inclusive practices of knowledge production that is enquiry-oriented and knowledge-building. These practices, she suggests, help to restore 'active' public trust and respect, appropriate to contemporary contexts of continuous challenge and problem-solving, organised around systematic enquiry.

These ideas are articulated in relation to organisational contexts (schools, hospitals, local government, legal practices) and at the level of Government. Policy makers are shifting towards new forms of governance that are understood to be appropriate to the needs of an information-rich society: they seek to address the complex intersection of social change, enhanced information, increasing demand and the nature of risk in society (Sharma and Gupta, 2006; du Gay, 2005). In the fields of health and medicine the new professionalism is closely linked to accountability achieved through quality regimes that reference standards based on evidence and consensus among experts. There is a policy shift towards research on prevention, to more active information-giving and to longer term, community-based management of health problems (Nassehi, von der Hagen-Demsky and Mayr, 2007)

These features of the new professionalism all underline the centrality of knowledge, and highlight possibilities of alignment of 'new' forms of professionalism with new knowledge formations and practices, particularly practices of brokering and translation of knowledge. The discussion therefore moves to emergent perspectives on knowledge.

4.2 Perspectives on Knowledge

This section of the literature review concentrates on a set of perspectives derived from research and policy literatures that encapsulate contemporary conceptualisations of knowledge that connect productively to the key issue of developing Clinical Academic Careers in nursing. As has already been suggested, there are clear indications that these approaches to knowledge are being mobilised in developing strategies within the UK. These developments reflect a clear understanding that policy priorities revolve around ways of developing knowledge economies and knowledge societies (OECD, 2000; Thrift, 2005; TSG, 2007). The search for the best ways of promoting the KE/KS encompasses a search for the best form of organisation-whether corporate or public- with appropriate forms of career development and progression. The emergent, preferred policy paradigm is that of a 'learning organisation' (OECD, 2000).

4.3 The Learning Organisation

Key features of the learning organisation are that it prioritises the importance of knowledge about knowledge; seeks to free creativity and energy in systems, and to build knowledge

sharing, generation and retention into organisational processes: these features may be identified, to greater or lesser degrees, in the various approaches to the development of CACs in nursing reviewed above. The paradigm draws on contemporary developments in the 'economics of knowledge' (Foray, 2004) that connect to the heightened significance of knowledge management, and the redesign of organisations in 'post-bureaucratic' forms, ie as non-hierarchical, networked systems. This increasingly influential school of thought sees members of learning organisations as contributing added value through their continuous learning, which generates new, productive, knowledge not for the individual learner, but for the organisation (OECD, 2000), and, ultimately, for the publics they serve. For the purpose of this review, it is of interest that this shift requires identification with the organisation's goals, and not with an individualised career agenda: the individual career is subsumed within the knowledge-building agenda of the organisation (Casey, 2004). Such an alignment is potentially productive for the development of Clinical Academic Careers in nursing, however it should be noted that forms of recognition in the academy remain quite competitive and individualised (Shattock, 2009).

At the same time, and connected to these developments in organisational practices, including evidence-based practice, there are changes in society that require changes in science that affect research practices, their institutional locations and, indeed, the very definition of what counts as knowledge (Beck, 2000; Brint, 2001). A well known formulation of these ideas is contained in 'Science's New Contract with Society' (Gibbons, 1999), which is further developed in the equally well-known concepts of Mode 1 and Mode 2 knowledge, where Mode 1 is defined as discipline-based, rule-bound and located in traditional research cultures and Mode 2 is more widely dispersed, problem-focused and developed in the context of application. These ideas are now more than a decade old, but their implications for research and processes of knowledge translation are promoted in policy agendas for research across Europe (European Commission, 2007). They challenge conceptions of a linear process of research informing policy and practice: rather the research-practice relationship is characterised as iterative, problem-focused, and trans-disciplinary (Delanty, 2001; Gibbons et al., 1994; Nowotny et al., 2001). In these new knowledge production forms and processes, creative thinking, innovation and problem-solving are valued over and above the consolidation of static knowledge stocks and their linear transfer into 'outputs' (Stehr, 2002).

These developments connect to the focus on developments in clinical academic careers for nursing that seek to forge new career paths that combine research and practice. These developments are highly congruent with approaches to knowledge and organisational learning, and also address the concerns about performativity noted above. Organisational learning cultures that sustain problem-focused knowledge production are less reliant on external mechanisms to monitor performance, while they claim to engender relations of trust, transparency and openness within the organisation, that are conducive to 'real' learning. Current managerial pre-occupations with monitoring quality are shifted away from external scrutiny towards front line providers, who need to be knowledgeable, to be able to 'translate' practices in specific contexts, and to engender a learning culture.

4.4 Leadership Capacities

New kinds of knowledge workers are thus required, especially in leadership roles, where the following capacities are prioritised:

- knowledge integration, direction and co-ordination;
- the possession and development of specialised knowledge that is 'mission-critical';
- the ability to manage through knowledge rather than hierarchy;
- communication skills exercised through horizontal rather than vertical communication;
- information gathering from many sources;
- the fostering of responsible, self-managing groups (adapted from Hargreaves, 2000).

These approaches blend different kinds of knowledge-implicit and explicit knowledges, through an emphasis on binding knowledge to action. Knowledge in this context is the translation of information or content in the conditions of action (Willke, 2002), and includes in its definition capability for action or capacity to make change happen (Stehr, 2001). These developments owe much to the earlier work of Nonaka and Takeuchi (1995) who have been influential in drawing attention to the transformational processes between what they call implicit and explicit and personal and organisational knowledge. They identify four intersections between these knowledges: socialisation, externalisation, combination and internalisation.

- Socialisation records the adoption of tacit knowledge through practice;
- Externalisation translates tacit knowledge into explicit knowledge;
- Combination enables the institutional and organisational communication of explicit knowledge;
- Internalisation is the processing of the knowledge by the individual so that it becomes assimilated as a resource (derived from Nassehi et al., 2007, p161).

Externalisation and *combination* may be seen as key roles in research leadership, and may offer a resource exploring the design and support of knowledge leadership positions, such as Clinical Academic Careers in nursing.

4.5 Translation

As we have seen there is a strong awareness of the importance of processes of 'translation', in co-ordination and in alignment of knowledge perspectives, that forms a key component of the design of clinical academic careers in nursing. Translation may be needed to support communication between heterogeneous environments, including research and practice environments. Wenger (1998) draws attention to the positioning of such 'translators' and the demands on them that require them to manage belonging and not belonging and combine distance and legitimacy:

'The job of brokering is complex. It involves processes of translation, coordination and alignment between perspectives. It requires enough legitimacy to influence the development of a practice, mobilise attention and address conflicting interests. It also requires the ability to link practices by

facilitating transactions between them, and to cause learning by introducing into a practice elements of another. To this end, brokering provides a participative connection – not because reification is not involved, but because what brokers press into service to connect practices is their experience of multi-membership and the possibilities for negotiation inherent in participation.’

(Wenger, 1998, p. 109, quoted in Delvaux 2007, p 273).

In particular, this developed concept of translation addresses some of the concerns that have arisen in the past within the field of nursing as a whole about a possible superficial enrolment by nurses in explicit knowledge based practices (cf. Porter, 1992; Latimer, 1995). As we have indicated above, some literature suggests that managerialisation of the medical domain encouraged nurses to adopt a scientific and technical discourse in a way that mimics medicine. In so doing they may also have taken on work previously associated with doctors (cf. Hunt and Wainwright, 1994). However, according to some researchers, these roles were highly defined by protocols and guidelines of diagnosis, investigation and treatment, aimed at standardising responses, and that obviate or hide the interpretative aspects of medical diagnosis and treatment (Latimer and Ozga, 2000). The extended and developed concept of translation, linked to an extended conceptualisation of knowledge, offers a different perspective.

Summary

To summarise: there are a number of developments in approaches to knowledge that derive from the very significant shift towards a knowledge economy and knowledge society. Knowledge is valued in new ways, in particular for its potential to enable policy makers and citizens to manage risk and uncertainty, and to take responsibility for informed choices (for example in relation to health). In this context, there is enhanced attention to organisational forms and processes, particularly those that inhibit or support organisational learning. Organisational learning is supported by networked and flexible forms and relations between groups, and places considerable importance on capacities to develop knowledge in the contexts of its use, to integrate knowledge, and to translate knowledge, working between the protocols and coded practices of science, and the capacity of the organisation to learn.

These developments are congruent with the development of Clinical Academic Careers in Nursing, and work with the grain of policy and organisational priorities to change work cultures and make knowledge more productive.

5. Conclusions

The relationship between health and higher education is complex and is characterised by differing strategic objectives and reporting requirements. An opportunity for policy convergence occurs through the establishment of clinical academic posts that create and embody partnership between the two worlds and if managed well could be an exemplar for effective use of resources in an environment of constrained finances that encourages collaboration. An important part of potential collaboration is understanding and articulating the value and place of clinical academic posts in relation to health services' evidence-based practice, quality improvement and knowledge translation agendas and to nursing research and knowledge transfer agendas of universities. This is crucial to achieving the mutually desired outcome of improving outcomes for patients and the quality of the patient experience, central to government policy.

This paper has reviewed selected literature on the establishment and sustaining of clinical academic careers in Scotland and five international comparators: England, Northern Ireland, Australia, United States and Canada. The literature in support of establishing and maintaining these posts has tended to be descriptive rather than empirical, but it has been possible to identify policy environments, models, barriers and facilitators in order to understand how best to advance clinical academic pathways in nursing. Internationally governments, health authorities and nursing sector professional bodies have commissioned reports and developed policies that support enhancing quality, capacity and capability in nursing research, teaching and scholarship. Establishing and maintaining clinical academic posts is an essential part of this wider nursing policy agenda as these posts involve clinical practice, teaching and research and an effective route to bridging the gap between the academy and clinical services. Putting these policies into operation has presented a number of significant challenges to countries including identifying barriers to, and facilitators of establishing these posts. Common barriers to emerge in the literature are clustered around the recognition of the clinical–academic divide, and the need to work through organisational barriers and as well challenges faced by individual post holders moving between two worlds. Common facilitators are clustered around securing targeted funding to support research training initiatives and fund joint appointments up to clinical chairs and securing formal agreement across the academy and health services.

Nursing is maturing as an academic discipline and both the quantity and quality of research is on a positive trajectory. Increasingly, researchers are able to demonstrate links between nursing research and improving outcomes for patients and the quality of the patient experience. High quality nursing research, however, has been largely undertaken by academics, many of whom may not have had recent clinical experience or indeed any nursing experience. Therefore, they are likely to be only fluent in the academic environment and may have difficulty demonstrating how their research is relevant to clinicians and patient outcomes.

In Scotland, developing nursing researchers fluent in both environments has proved difficult. The journey began with a 'bottom up' approach to developing research careers with the emphasis on increasing the number of PhD completions. Nursing PhDs research tends to be individualistic, not necessarily having any strong relation to clinical practice which hampers integration knowledge exchange between the two worlds. Nurses with PhDs have been faced with the choice of either returning to health services full time, and not necessarily finding an appropriate position where they can utilise their newly acquired research skills or staying in the academy and following a traditional research career path. Along with the increase in the number of PhD completions and the creation of a small number of post-doctoral posts and there was already a sprinkling of clinical academic posts in existence focused almost entirely on teaching and clinical practice.

NHS Education for Scotland's recent national principles and framework provides guidelines for a coherent approach for organisations wishing to implement clinical academic career pathways. The NHS Lothian pilot for NMAHPs launched in 2010 is an example of an attempt to provide a coherent approach to early academic career for six NHS staff (some of whom will be nurses) who will hold joint appointments. As the research indicates, however, being in two environments is not a sufficient condition for the translation of evidence into practice to occur: there needs to be structural models and incentives that facilitate knowledge exchange and knowledge translation. The joint appointee is reliant on strong leaders who have the power to create the right conditions to ensure these opportunities are provided. Currently the issue of how to achieve clinical academic leadership posts such as clinical chairs is being investigated by nursing leaders. The literature supports this step having clearly demonstrated the benefits of strong clinical academic leadership.

In addition, some elements of the literature review have identified the possibility of moving beyond knowledge exchange towards the more fundamental and powerful concept of translation. This offers to leadership in the nursing profession a role in enabling the academy to move towards mode 2 knowledge production and organisational learning, as these developments require considerable change in academic cultures and practices, which leading clinical academic nurses are exceptionally-well placed to encourage.

Put differently, the case for establishing and maintaining clinical academic posts for nurses may be strengthened through extending the concept of evidence-based practice to take account of ideas of organisational learning and new forms of knowledge production. Such developments work with the grain of the existing capacity of clinical leadership to provide the missing link in enhancing research productivity and move it into the emergent, and significant arena of research translation. Clinical chairs, as intellectual leaders grounded in practice as well as theory, are in an excellent position to move beyond sterile theory-practice debates and work with the idea of translation to move the evidence-based practice and quality improvement agenda (The Scottish Government, 2010a) forward. Clinical chairs potentially comfortably engage in scholarly as well as clinical debates sharing fluency in both worlds. They understand and lead in knowledge translation, knowledge transfer and quality improvement. Embodying partnership between health systems (knowledge users) and higher education (knowledge producers), clinical chairs are in a position of leadership and

power that enables them influence the research culture of both the academy and clinical practice. Clinical chairs can effectively engage with clinical staff and academic staff at all levels to facilitate the co-production of knowledge to jointly achieve better outcomes and quality for patients.

Maximizing the benefits of health research through knowledge translation is a key theme in both government health and university policies and strategy, however without strong clinical academic leadership many of the 'bottom up' initiatives may lead to future disappointment. The time is right to exploit the value of establishing clinical academic posts for nursing leaders as pivotal in developing partnership between health (knowledge users) and higher education (knowledge producers): this partnership may also now be constructed around shared goals that promote learning across all the players involved, in pursuit of improved patient outcomes.

The empirical element of this research will focus on three case studies of NHS Boards and their partner universities in different parts of Scotland. It will build on the findings of this literature review by testing out whether the barriers and facilitators identified here are similar to or different from those currently involved in establishing and maintaining clinical academic posts for nurses. It will provide an opportunity to explore at first hand how the partnership has been operationalised between the NHS and partner HEIs and the potential for knowledge exchange.

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Appendix 1: Clinical Academic Nursing Post Holders' Challenges

Role strain and conflict in academia	Role strain and conflict in clinical practice	Clinical & academic-partnership	Knowledge Exchange & Evidence-based practice & quality improvement
<ul style="list-style-type: none"> • Pressure to conform to the requirements of academia (associated with teaching and research) may take precedence over their commitment to clinical practice. • Some universities view clinical practice as separate from research and scholarship, and from their core business • Difficulties faced with differing financial and contractual arrangements between academia and health services. • Potentially no recognition from the university performance system for clinical practice • Struggle to gain appropriate funding, suffering from a lack of time to perform research, and lack of appropriate research skills. • Nursing Clinical Academics, like all other academics, are under pressure to produce scholarly publications. • Positioning nursing research in relation to other disciplines and establishing recognition of its contribution is challenging. • The constant attention in the literature to the theory – practice gap seems excessive and disproportionate to other comparable professions. 	<ul style="list-style-type: none"> • Clinical nurses: high workloads, tacit knowledge, lack of research skills have been identified as barriers to undertaking research. • Clinical Nurses face significant challenges in their work such as the need to become more productive despite a decrease in resources, demand for greater patient acuity. • An ongoing shortage of adequately skilled and experienced nurses suggests that in the face of this demanding environment it is not surprising that nurse clinicians find it difficult to consider the significance of research to their practice. • Different attitudes to research held by academics and clinicians may exacerbate the divide for example, academics complain that clinicians do not use research to inform their practice and clinicians believe that academics are out of touch with contemporary clinical practice. 	<p>Clinical academic nurses experiences:</p> <ul style="list-style-type: none"> • Between two worlds and must be fluent in both • Need to construct own space • Model appropriate behaviours in two worlds • Reflexivity • Cool analysis of two cultures can't assume carrying meaning 	<ul style="list-style-type: none"> • The concept of evidence-based medicine/health rests on an implicit assumption of a partnership between universities as knowledge-generators (evidence) and health systems as utilisers of that knowledge • Clinical academic posts for nursing have the potential to enhance evidence-based practice and quality improvement through the co-production of knowledge in direct patient care research. • Clinical academic posts for nursing are ideally placed to facilitate evidence-based practice through systematically finding and using research as the basis for their clinical decision making.

Appendix 2: Scotland and international comparators (England, Northern Ireland, Australia, USA, and Canada) - Re: barriers to and facilitators of establishing clinical academic posts for nursing

Scotland	England	Northern Ireland	Australia	USA	Canada
COMMON BARRIERS <ul style="list-style-type: none"> • Positioning the legitimacy of nursing research as an academic discipline <ul style="list-style-type: none"> • Understanding ‘patch protection’: within two worlds of academia and health services • Understanding & articulating how to join up nursing research with teaching and practice • Understanding & articulating the value of clinical academic posts in relation to the evidence-based agenda and the knowledge translation agenda with the HEI knowledge exchange agenda 					
Scotland (see Section 2.2)	England (see Section 2.3)	Northern Ireland (see Section 2.5)	Australia (see Section 2.6)	USA (see Section 2.7)	Canada (see section 2.8)
United Kingdom Over the past decade commissioned reports and government policies reflect growing concern about developing a culture of research in nursing and supportive research career structures. The three key areas where significant barriers to the implementation of clinical academic posts that have been identified in numerous reports eg (Finch Report, 2007) are: 1. Education and training; 2. Employment structures and 3. Research generation and utilisation 1. Education and training: <ol style="list-style-type: none"> a. lack of exposure of undergraduates to research b. graduates not being nurtured to become researchers c. nurses who do undertake a PhD they tend to be self-funded and work part time with little or no guidance or support d. limited but growing number of PhD scholarships available e. small number of postdoctoral awards/fellowships f. lack of research career planning and mentoring. 2. Employment structure issues: <ul style="list-style-type: none"> • current employment contracts make it difficult to work in both academic and clinical work • current pay scales between clinical practice and research are incompatible this has resulted in too few joint HEI/NHS appointments being made • high clinical workload and a lack of protected time for research that may lead to burn out • researchers appear to have a variety of job descriptions, roles, titles, often 			<ul style="list-style-type: none"> • The clinical setting remains ideologically and attitudinally separate from the university - often not open to change and innovation. • The university may be unwilling to release staff for faculty practice, because of wider issues affecting it such as the university downsizing and staff shortages. • Individual nurse academics themselves may see faculty practice as a burden leading to excessive and unsustainable workloads • The amount of time spent by an academic in clinical practice diverts resources away from the university 	<ul style="list-style-type: none"> • Limited time for faculty to fulfil their obligations in the areas of practice, teaching and scholarship. • Limited funding opportunities for faculty practice (especially from core funding). • Conflicts in the commitment between the community service agency and the university. • Limited recognition for faculty practice within the context of promotion and tenure. • Difficulties posed by financial and contractual arrangements. 	<ul style="list-style-type: none"> • In the early days of establishing PhD programs the dominance of medicine was considered a significant barrier because nursing academics and administrators had to convince medicine of the legitimacy of nursing research. • A potential barrier to nurses obtaining doctoral fellowships is the requirement by many funding agencies that applicants must enrol in full time study. • For nurses wishing to undertake post-doctoral level study the requirement by most

Scotland (see Section 2.2)	England (see Section 2.3)	Northern Ireland (see Section 2.5)	Australia (see Section 2.6)	USA (see Section 2.7)	Canada (see section 2.8)
<p>work alone with poor appraisal systems, with limited education and training opportunities and lack of career guidance</p> <ul style="list-style-type: none"> • 'anti-academic culture' that may obstruct proposed development of integrated and flexible career paths. <p>3. Research capacity and capability:</p> <ul style="list-style-type: none"> • lack of capacity and capability in nursing academic departments to conduct research • need for targeted financial support to facilitate development • lack of capacity and capability in the nursing workforce to use research. 			<ul style="list-style-type: none"> – the issue of compensation from healthcare partners has yet to be addressed. • Nursing academics are tied into producing research and other scholarly outputs, and to bringing income into the university and nursing under-performs in these areas. • Nursing academics generally have not been able to demonstrate sufficient benefits from their faculty practice consequently it cannot be justified in terms of the costs and the competing demands. 		<p>funding agencies that post holders do not hold a faculty post may be a barrier. CHSRF recently waived this requirement. It was noted that flexibility will be important in order to facilitate opportunities for future career scientists (ibid).</p> <ul style="list-style-type: none"> • There is a shortage of faculty prepared to supervise doctoral students

Scotland	England	Northern Ireland	Australia	USA	Canada
COMMON FACILITATORS					
<ul style="list-style-type: none"> • Nursing research recognised as an academic discipline with increasing merit <ul style="list-style-type: none"> • Recognition of the academic - clinical divide • Growing recognition in academia and clinical practice of the potential of clinical academic posts <ul style="list-style-type: none"> • Government policies to support development • Funding secured from Governments, funding bodies and universities <ul style="list-style-type: none"> • Leadership posts created • Research capacity and capability development focus 					
Scotland (see Section 2.2)	England (see Section 2.3)	Northern Ireland (see Section 2.5)	Australia (see Section 2.6)	USA (see Section 2.7)	Canada (2.8)
Below are responses to the Finch Report (2007)					
<ul style="list-style-type: none"> • Initiatives involving Scottish Government, the Scottish Funding Council and NHS Education Scotland have built research capacity in nursing, midwifery and allied health • A number of the Finch report recommendations had been already been undertaken in Scotland. Nursing research has been facilitated through three NMAHP Research Consortia, the Chief Scientist Office NMAHP Research Unit, and the NMAHP Research Training Scheme which funded PhD studentships and Postdoctoral Fellowships. • The policy and funding initiatives described above contributed significantly to the success of Scottish NMAHP research in the 2008 RAE. 	<ul style="list-style-type: none"> • In December 2008, the NIHR and CNO for England launched a joint initiative for a clinical academic training pathway for NMAHP. The initiative was developed in partnership with the ESRC and HEFCE. • The focus to date has been on investment in capacity building. • The clinical academic training pathway consists of four levels of integrated training: from Masters to Senior Academic Clinical Lectureships • HEIs have been awarded contracts to supply a master's programme in clinical research. Individuals 	<ul style="list-style-type: none"> • The Health & Social Care Research and Development (HSC R&D) remit includes funding nursing research and supporting clinical academic careers for nursing • In 2010, a Northern Ireland Strategy for Nursing and Midwifery 2010-2015 was published supporting translation of nursing research into practice and leadership for R & D through the establishment of joint appointments • Northern Ireland has a strong track record of senior professorial joint appointments with current support from 	<ul style="list-style-type: none"> • Australian nursing research is growing, particularly the body of knowledge on the practice of nursing and clinical research, however the overall contribution to improving health systems remains limited • Nursing research struggles to attract funding in a competitive environment, from either traditional sources within the higher education sector or external business or industry. • Future targeted investment by the Australian Government is seen as the way forward to build 	<ul style="list-style-type: none"> • The university provides clinical healthcare services which vary from wholly owned university facilities to partnership arrangements between a university school and external funders and organisations. • The healthcare services are commonly known as nursing centres and are usually highly specialised, and are provided through a mix of on and off campus sites. • Healthcare services offered by academics at the centres are often targeted at deserving populations at favourable rates and in turn these centres 	<ul style="list-style-type: none"> • Securing relatively high levels of salary support which had been the domain of medicine, dentistry and veterinary sciences, the higher level of funding meant a PhD became a viable option for those several years into their careers • Financial support for both doctoral and post-doctoral fellowships has been a crucial part of research capacity and career development • The numbers of grants to nurses as principal investigators from the Canadian Institutes of Health Research (CIHR) have steadily increased

Scotland (see Section 2.2)	England (see Section 2.3)	Northern Ireland (see Section 2.5)	Australia (see Section 2.6)	USA (see Section 2.7)	Canada (2.8)
<ul style="list-style-type: none"> • Current initiatives include conferences, working groups and the development of policy frameworks and tools for implementing clinical academic careers. • In 2009 ‘Curam’ the professional magazine for NMAHPs was launched – it is an important communication tool for the Scottish Government and NHSScotland in terms of NMAHP policy and practice including research. • In 2010 NHS Lothian and NHS Education in partnership with three universities developed a pilot scheme aimed at establishing a research career pathway for a small number of NMAHPs and overcoming many of the barriers identified in the Finch Report. • The 2009/11 NMAHP work programme for Scotland has a research component that aims: “to ensure evidence-based, high-quality NMAHP health care provision for patients and carers by building and sustaining NMAHP research”. • The Consultant Nurses Guidance for NHS Boards 2010 was launched it covers the consultant nurse 	<p>have been invited to apply for fully funded doctoral (PhD) fellowships. Postdoctoral fellowships have also recently been advertised.</p> <ul style="list-style-type: none"> • In 2008 nine Collaborations for Leadership in Applied Health Care Research and Care (CLAHRC) were established. • The initiative was designed to encourage high quality applied health research including nursing research and support translation of findings into practice within NHS England. • The CLAHRC were set up as a collaborative partnership between one or more universities and partner NHS organisations. <p>The initiative attracted a significant investment £10 million of NIHR funding for each CLAHRC over five years with equal matched funding from collaborative funding bringing the total funding</p>	<p>senior managers in Trusts</p> <ul style="list-style-type: none"> • HSC R&D funds Masters, PhDs and Post Doctoral Fellowships for health professionals through the five HSC Trusts that cover Northern Ireland. • Focus on capacity building through allocating funding to succession planning with a strong emphasis on PhD fellowships and increasing the number of post doctoral positions. • Research impact important - have involved managers and frontline nurses in research teams to help facilitate the translation of research findings. • Crucial to the success of clinical academic careers is linking outcomes to the strategic plans of the HSC Trusts and the HEIs. <p>In 2009, HSC R&D established a Clinical Academic Training Pathways project team to develop a ‘Clinical</p>	<p>research capacity, seen increase the level of post-graduate scholarship, expand nursing research grants and develop cooperative research centres for nursing (ibid, 2008).</p> <ul style="list-style-type: none"> • Problems are being solved with the administration and regulation of faculty practice such as establishing fair staff appraisals with regard to both academic and clinical roles, clinical supervision and funding indemnity insurance. • Strategies for fostering evidence-based practice include: the appointment of nursing directors with specific responsibility for research; researchers who are based in a university and hold research fellow status; and professorial chairs which are mostly designed to achieve effective partnerships between the academy and the health . • The research 	<p>provide learning model context for students and research opportunities</p> <ul style="list-style-type: none"> • Faculty practice covers all aspects of healthcare roles such as clinician, consultant, researcher, educator, and administrator. • The elements of faculty practice are: (a) formal contractual arrangement with clearly defined focus and boundaries; (b) teaching, clinical practice, service and research activities centred on patient care; (c) clinical scholarship as the key outcome; (d) additional resources above the teaching allocation provided. • Healthcare services provided by academics may be part of their university employment or be private practice for a fee. • Key is shared academic and clinical leadership for nursing. • Clinical Academic employment models 	<ul style="list-style-type: none"> • Leadership for nursing research is seen as important with the number of research chairs steadily increasing. • Recognised that nursing research has the capacity to contribute to addressing priority issues in health and healthcare • The Canadian Health Services Research Foundation (CHSRF) and the Canadian Institutes of Health Research (CIHR) committed funding to address the shortage of applied health and nursing services researchers in Canada • The CHSRF and the CHIR jointly designed the Capacity for Applied and Developmental Research and Evaluation program (CADRE) which is aimed at the developing careers in applied health services and nursing research. • The Canadian Federal

research roles and functions.					
Scotland (see Section 2.2)	England (see Section 2.3)	Northern Ireland (see Section 2.5)	Australia (see Section 2.6)	USA (see Section 2.7)	Canada (2.8)
<p>In 2010 Advanced Practice Nursing Research Roles: Guidance for NHS Boards 2010 was launched and covers research roles and functions for Advanced Nursing Practice.</p> <ul style="list-style-type: none"> • During 2009/2010 an NHS Education for Scotland NMAHP Clinical Academic Careers Short-Life Working Group developed a Clinical Academic Research Career (CARC) Framework and accompanying set of Principles (NHS Education for Scotland, 2010b) with the aim of providing a national structure to guide NMAHP clinical academic research collaborations. 	<p>to £20 million.</p> <ul style="list-style-type: none"> • A recent report titled 'Front Line Care: the future of nursing and midwifery in England Report of the Prime Minister's Commission on the Future of Nursing and Midwifery in England 2010' highlighted key issues related to the development and implementation of clinical academic careers. For example: the report noted that academic and clinical career structures currently are separate and there is a need to develop collaborative roles such as joint appointments and create new collaborative models to facilitate greater mobility between careers and roles in health service delivery, teaching and research. Further development of nurses' and midwives' research capacity is viewed as essential. 	<p>Academic Pathway for Nurses, Midwives and AHP in Northern Ireland' strategy. The document has gone through an extensive consultation process and work is currently going through the project committee structures.</p> <ul style="list-style-type: none"> • Challenges in developing CAT Pathway in Northern Ireland include: to establish employment contracts that recognise research workload; to encourage attitudinal change and the development of a supportive culture within HSC to allow staff to undertake research; and to support post- doctoral research activity. 	<p>collaboration between nurse researchers and nurse clinicians was a useful strategy for generating clinically relevant nursing knowledge</p> <ul style="list-style-type: none"> • Schools of nursing are under increasing pressure to demonstrate successful research performance and are keen to recruit staff with doctoral qualifications. • The aging nursing academic workforce (involved in teaching, research and in some cases faculty practice) has raised questions of sustainability of programmes and this in turn put pressure on universities to produce large numbers of doctoral graduates in a relatively short time period of time to meet the demands of the academy. 	<p>include: unification model, Collaboration or joint appointment = joint appointments between the university and the clinical service are made. The dyad model = shared services and joint research, education and clinical practice - no financial exchange. The integration or nursing centre model = academic staff and graduate students share patient care responsibilities. The entrepreneurial or linkage model = academics develop their own practice roles - explicit clinical roles. The private practice mode =academics have their own private practice.</p>	<p>Government in 1999 provided a \$25 million.</p> <ul style="list-style-type: none"> • endowment specifically targeted towards nursing research which was administered by the Canadian Health Services Research Foundation (CHSRF) over 10 years. A recent evaluation recommended that funding be continued.

Appendix 3: A framework for exploring and sustaining the tripartite mission of establishing and sustaining strategic links between research, education and health provision (Locating Clinical Academic Posts for Nursing 2010 and Beyond)

Introduction

Clinical academic posts for nursing have the potential to create and embody partnership between the health systems (knowledge users) and higher education (knowledge producers). These posts involve research, teaching and clinical practice. The framework below highlights important strategic issues, and poses questions that have emerged from the literature to consider when establishing and sustaining links between research, education and health provision.

	Policy	Higher Education provision	Health/Clinical provision	Research
Environments (Know, understand, articulate and relate)	<p>Policy</p> <p>The Finch Report (UKCRC, 2007) sets out UK-wide recommendations for the development of clinical academic pathways for nurses from undergraduate exposure to research through to the establishment of more Doctoral, Post Doctoral and Senior Clinical Academic Nurse positions.</p> <p>An example of other key policy documents include:</p> <ul style="list-style-type: none"> • Scottish Government Performance Framework - Healthier Scotland Targets. • Investing in Research/Improving Health (CSO, 2009). 	<p>There are 11 HEIs involved in nursing education and research.</p> <ul style="list-style-type: none"> • Of the 11 Schools of Nursing which ones currently have documented research strategic plans and research operational plans? Who do they engage with when planning? • Of the 11 nursing departments/units how many over the past 3-5 years have publicly documented achievements in linking nursing research to teaching and clinical practice? • Of the 11 nursing 	<p>NHS Trusts are:</p> <ul style="list-style-type: none"> • Commitment to evidence-based practice and to the Quality Strategy for NHSScotland. • Commitment to supporting CARC. 	<p>Nursing is maturing as an academic discipline and a small but growing literature now links developments in nursing education, research and scholarship with improved outcomes for patients. Some questions to ponder on with regard to the future development of nursing research:</p> <ol style="list-style-type: none"> 1. What does Scottish nursing research look like in 2011? 2. Is this the 'right mix' for Scotland going forward? 3. How might clinical academic positions be used to facilitate new directions in research? (eg collaborating on research projects with Europe and internationally) 4. What will Scottish nursing research look like in 2016? 5. Is there a plan to create a critical mass of nurses engaged in nursing research and what might that look like? 6. Of the pool of nursing professors how many are in clinical academic posts or would want to be?

	Policy	Higher Education provision	Health/Clinical provision	Research
	<ul style="list-style-type: none"> • The Healthcare Quality Strategy for NHSScotland. (The Scottish Government, 2010) • A National Approach to Clinical Academic Research Careers for Nursing, Midwifery and Allied Health Professions in Scotland (NHS Education for Scotland, 2010b). 	<p>departments/units which ones currently have clinical academic posts or have set aside funds to establish positions in the next five years? What do these posts look like?</p>		<p>What are the 2011 statistics for the categories below? (The total numbers below are from Tierney, 2007)</p> <ul style="list-style-type: none"> • No. professors has risen (from 23 to ?) • No. of HEI nursing research-dedicated' posts? • No of current clinical academic posts? • No. of planned clinical academic posts over next five years? • No. of staff with a doctoral degrees (from 119 • No. of students undertaking higher research degrees (From 194 to ; PhD from 149 to) • No of PhDs that self funded, external scholarships and PhD scholarships provided by the NMAHP Research Training Scheme and undertaken by nurses/midwives; • No of postdoctoral fellowships, where are they located and who funds them? • No. of staff in Nursing Dept/Units engaged in research project(s). (From 33% to?
Alignment – (Acknowledging and working with complexity and tension across key areas)	<p>Policy Consider:</p> <ul style="list-style-type: none"> • Local policy • National policy • International policy 	<p>HEIs</p> <ul style="list-style-type: none"> • Establishing the need to align • University and clinical relations at directorate level • Developing joint working • Cross Representation • Developing common objectives • Beyond liaison • Bridging management, HR and legal structures • Aligned managerial functions • Joint strategy board • The matrix model of management 	<p>NHS Trusts</p> <ul style="list-style-type: none"> • Establishing the need to align • Clinical and university relations at directorate level • Developing joint working • Cross Representation • Developing common objectives • Beyond liaison • Bridging management, HR and legal structures • Aligned managerial functions • Joint strategy board • The matrix model of management 	<p>Research Nursing Agendas</p> <p>Local (HEI) Local (NHS) Regional (HEI) Regional (NHS) National (HEI) National (NHS) UK (HEI) UK (NHS) International (HEI) International (NHS)</p>

<p>Consider building a common language</p>	<p><i>Knowledge Exchange & Evidence-based practice & quality improvement</i></p> <ul style="list-style-type: none"> • The concept of evidence-based medicine/health rests on an implicit assumption of a partnership between universities as knowledge-generators (evidence) and health systems as utilisers of that knowledge. • Clinical academic posts for nursing have the potential to enhance evidence-based practice and quality improvement through the co-production of knowledge in direct patient care research. • Clinical academic posts for nursing are ideally placed to facilitate evidence-based practice through systematically finding and using research as the basis for their clinical decision making.
<p>Monitoring and Evaluation</p>	<p><i>Does Scotland have a tool like ARC?(Self monitor, report, evaluate, inform future developments?)</i></p> <p>A tool called Auditing Research Capacity (ARC) for CLAHRC (English model) was developed for monitoring and reflecting on research capacity building. ARC tools were designed to help organisations identify where they are with regard to a wide range of capacity development indicators. In particular the tools are designed to encourage self-reflection and sought to address development needs in relation to research capacity. Tools cover: skill development (eg research training secondment, fellowships); infrastructure (eg strategy, research support, funding and resources); Close to practice (eg involvement with practitioners/managers, research ideas generated from practice); Leadership (eg support of R & D Director, Trust Board, managerial support for researchers); Linkages, partnerships and collaborations (eg appointment of joint NHS/HEI positions, inter-professional involvement in, links with NIHR infra-structures); Research Culture (eg achievement of high profile publications, research viewed as a core activity); and sustainable research activities (eg level of research activity, number submissions for funding, number of successful funded applications).</p>
<p>Funding</p>	<p><i>Does Scotland have a strategic plan for funding ‘a critical mass’ of nursing clinical academic positions? Nursing research, existing academic nursing research?</i></p> <p>The present economic climate of constrained funding challenges the sustainability of programmes and pilots. How sustainable is funding through government agencies, health departments, trusts, research funding bodies, endowments and HEIs to enable nursing research to be commissioned and to support PhD Scholarships, Post-doctoral Fellowships and Clinical Chairs?</p>

Appendix 4: Literature Review Sources

The literature review has included peer-reviewed and non peer-reviewed literature and extensive internet searches. Example of key terms used to search the literature are: CNO Scotland, NHS Scotland, NES, CSO, clinical academic nursing, faculty practice nursing, knowledge exchange; quality improvement in health; evidence based practice; interface between health and education systems; UK clinical research collaboration.

Key journals to be reviewed for relevant articles include for example:

- Journal of Research in Nursing;
- Journal of Clinical Nursing;
- Nurse Education Today;
- Health Management;
- Journal of Advanced Nursing.

Examples of the websites used:

<http://www.ukcrc.org/workforcetraining/nursesmidwivesahp.aspx> - focuses on new clinical research career structures for nurses, midwives and allied health professionals

[http://www.lincoln.ac.uk/ccawi/clinicalacademic careers.htm](http://www.lincoln.ac.uk/ccawi/clinicalacademic%20careers.htm) – focuses on clinical academic careers

<http://www.nes.scot.nhs.uk/nursing/researchcareers> - NHS Education for Scotland (NES) Clinical Academic Research Careers; Strengthening Partnership working; Patient Focus; Public Involvement

<http://www.nccrcd.nhs.uk/nursesmidwivesandaph> - ESRC and HEFCE – new major initiative to boost clinical academic careers

<http://www.library.dcu.ie/Portals/Nursing/nursing%20databases.htm> - access to key nursing and medical databases

<http://www.researchacademics.co.uk> - Academy of Nursing, Midwifery and Health Visiting Research (UK)

<http://ukpmc.ac.uk> - UK Pub Med Central (UKPMC)

<http://www.ukcrn.org.uk/index.html> - UKCRN Portfolio database UK Clinical Research Network Study Portfolio

<http://portal.nhs.ac.uk> - National Research Register – National Institute for Health Research Portal

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