Interventions and strategies aimed at Clinical Academic Pathway Development for Nurses in the United Kingdom: A systematised review of the literature

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Abstract

Aims and objectives: To review interventions and strategies designed to progress UK clinical academic career pathways in nursing and identify barriers and facilitators to aid wider implementation.

Background: For over a decade, the UK political agenda has promoted the entry of nurses into clinical academic roles. Partnerships between the National Health Service and academia are known to increase nursing recruitment, retention and quality of care. However, there remains a lack of nurses working in these partnership roles.

Design: A systematised review was conducted. An electronic database search was carried out in PubMed, CINAHL, the British Nursing Database, and PsychInfo for articles published between Sept 2006 to June 2020. A narrative approach to data synthesis was used and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines were followed.

Results: Ten papers were included in the review. The authors reported a range of programmes, pathways and toolkits. Pathway outcome measures included numbers of nurses recruited onto clinical

academic programmes, clinical academic programmes completed, nursing research outputs, impact on clinical practice and impact on nursing recruitment. Barriers and facilitators to pathway development included funding, clinical and research time constraints, infrastructure, strong and strategic clinical-academic leadership and effective partnership working. The quality of the included studies was mixed; more high quality, evidence-based programmes need to be developed and rigorously evaluated.

Conclusions: The findings can inform nursing clinical academic research pathway development internationally, by identifying key drivers for success. Sustained and cohesive implementation of clinical academic research pathways is lacking across the UK.

Relevance to Clinical Practice

Strong, strategic leadership is required to enable progression of clinical academic nursing research pathway opportunities. Clinical nursing practitioners need to collaborate with external partners to enable development of clinical academic pathways within the nursing profession; this can lead to improvements in patient care and high quality clinical outcomes.

Keywords

Nursing, research, clinical academic, professional development, workforce planning, recruitment, retention, leadership

Introduction

Research innovations and developments are central to improving patients' quality of care. High quality outcomes and patient experiences can be achieved through establishing a high calibre evidence base within clinical practice (Jonker, Fisher, & Dagnan, 2020). Registered nurses play a pivotal role in the delivery of high quality patient care; however, compared to their medical and allied healthcare professional (AHP) colleagues, less progress has been made in terms of educating, training and supporting the nursing workforce to develop and sustain clinical academic roles in healthcare. A 'clinical academic' can be defined as a healthcare professional who works within and across both clinical and academic environments (Carrick-Sen, Richardson, Moore & Dolan, 2016). Clinical academics possess a repertoire of skills in designing, conducting and disseminating high quality research. Research carried out by nurses can seek to address key clinical priorities. As a result, clinical academic research improves patient care and service delivery outcomes, increases patient satisfaction and improves staff retention and recruitment rates (Bramley, Manning, & Cooper, 2018; Commission, 2018; Richardson, Avery, & Westwood, 2019; Turner et al., 2017). With increasing healthcare pressures and a shortage of healthcare staff, the need to promote and support clinical academic role development is vital, as this can promote recruitment and retention of staff at all levels (Francis, 2013).

A clinical academic *pathway* implies a planned progressive development through undergraduate, masters, doctoral and post-doctoral levels. Once at post-doctoral level, clinical academics are expected to demonstrate research leadership and research capacity building to enable the growth and development of more junior colleagues (Carrick-Sen et al., 2015). For clinical academics to successfully operate in both clinical and academic environments, their role needs to be fully embedded within these organisations, with clear role objectives and outcome measures outlined at the outset and reviewed regularly across partner organisations (Carrick-Sen et al, 2019). Whilst the medical profession in the United Kingdom (UK) has a well-established clinical academic research

pathway (Walport, 2005), the parallel development of a pathway for non-medical healthcare professionals has not grown in the same way. Despite this, the development of clinical academic career pathways for UK nurses has gained profile since 2007, when a critical report highlighted major inequalities in terms of research capability and capacity compared to medical colleagues (Finch, 2007). Consequently, a five-year clinical academic programme was established by Health Education England, followed by a National Institute for Health Research (NIHR) Integrated Clinical Academic programme in 2015. The other three UK nations (Scotland, Wales, Northern Ireland) also committed to developing non-medical practitioners into clinical academic roles, initiating a variety of programmes and schemes. For example, Wales supported the development of research-focused clinical roles at nurse consultant level, whilst Scotland engaged in policy strategy aimed at developing a dedicated and sustainable non-medical research training pathway (Scotland, 2014; Unit, 2017). Additionally, the Association of UK University Hospitals (AUKUH), which was established in 1998 as a leadership body for UK university hospitals, committed to supporting the strategic and operational development of clinical academic careers with clinical academic resources for National Health Service (NHS) hospital trusts to access. Through AUKUH, the Clinical Academic Roles Implementation Network (CARIN) was established to further guide and support organisations to develop non-medical clinical academic roles (Carrick-Sen, Richardson, Moore & Dolan, 2016).

The political agenda within the UK over the past 15 years has promoted and encouraged the nursing profession to increase the number of nurses working in clinical academic roles; yet implementation of national research training priorities developed to meet this aim has produced mixed results. Anecdotally there are examples of significant progress at local levels, but these are not replicated consistently across the UK; instead they appear dependent on individual partnerships and fortuitous collaborations. Hence, a review of the evidence as to how clinical academic research pathways in nursing have progressed and any facilitators and barriers relating to this, is necessary.

Aims

The aim of this systematised review was to identify established and implemented interventions and strategies to develop clinical academic career pathways for nurses in the UK.

The objectives were to:

- identify and review any clinical academic nursing career pathways interventions and strategies developed across the UK (England, Northern Ireland, Scotland, Wales)
- assess the effectiveness and impact of the identified interventions and strategies
- explore any barriers and facilitators to successful development and implementation
- assess the acceptability of the identified clinical academic pathways for nurses and/or relevant stakeholders

Methods

Review design

A systematised review aims to include one or more elements of the systematic review process (Grant & Booth, 2009), but with more limited search parameters and with a narrative synthesis of findings (Table 1). This approach was chosen to enable the researchers to gain an overview of the existing literature on this topic using rigorous methods, whilst limiting the search year parameters to 2006 onwards to reflect the time since clinical academic research careers for nurses gained profile across the UK's political and healthcare spectrum (Health, 2006). In addition, a narrative approach to data synthesis allows for a comprehensive and contextualised oversight of the different strategies and interventions developed across the UK (Popay et al., 2006). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Supplementary File 1) were followed (Moher, Liberati, Tetzlaff, Altman, & Group, 2009).

Search strategy

An electronic database search was conducted in PubMed, CINAHL, the British Nursing Database, and PsychInfo for any relevant articles published between Sept 2006 to June 2020. Date parameters were set to identify any literature published after the release of the seminal paper on clinical academic careers in nursing: *Modernising nursing careers - setting the direction* (Health, 2006). Grey literature was also searched via Google Scholar and Google; these were selected due to their relevance and accessibility and all results returned on the first five pages (approximately 10 results per page) were screened. The search strategy included terms relating to or describing any interventions, initiatives or strategies which aimed to develop clinical academic career pathways in nursing in the UK. Relevant search terms were identified and refined during preliminary scoping searches. The final search terms used were: ("clinical academic*" OR "research nurs*" OR "clinically active researcher*" OR "research capacity" OR "research capability" OR premaster* OR master* OR predoctoral OR doctora* OR postdoctoral OR "nurse consultant*" OR "clinical lectureship" OR "clinical professor*" OR "career development" OR "workforce development") AND (nurs* OR "healthcare workforce" OR "health care professional*" OR "healthcare professional*").

The search was limited to the UK ("United Kingdom" OR UK OR Scotland OR Wales OR "Northern Ireland").

Eligibility criteria

All papers identified using the search terms were screened according to the following eligibility criteria:

Inclusion criteria

- Studies with a clearly stated definition of a clinical academic, or an implied link between university, academic and clinical settings.

- Any primary research about clinical academic pathways for multidisciplinary team members (midwives and/or AHPs), provided they reported on nurses.
- No restrictions on the types of study design eligible for inclusion, provided the study was reported on in a full publication with defined aims, methods, results and conclusions.
- Clinical academic programme development reports of the effectiveness or impact of the intervention or strategy implemented.
- Grey literature (unpublished reports) if available in the public domain.
- Conference proceedings if available in the public domain and full text obtainable (abstracts only were excluded).

Exclusion criteria

- A focus on increasing research activity for nurses working in clinical settings.

Screening process

The titles and abstracts of all papers (n=248) retrieved from the databases and grey literature were screened for eligibility by a member of the research team (OK). Following this, the 27 remaining full text articles were screened by five reviewers (OK, RS, AH, HW, CH) and any uncertainties regarding paper eligibility were discussed at team meetings until a consensus was reached. Seventeen papers were excluded for the following reasons: did not focus on clinical academic pathways for nurses (n=10), focused on specialist nurse role development (n=3), not primary research (n=2), focused on nurses' transition from clinical to academic setting (n=1), and focused on development of research skills (n=1). This left ten papers remaining for inclusion in the review (see Figure 1).

Data extraction

Three reviewers (OK, AH, RS) independently extracted data from the included papers, using a bespoke data extraction template to capture any relevant information (see Appendix 1). Extracted information

included the definition of a clinical academic used, country and region of study, intervention, funding sources, resources required to deliver the intervention, study aim, design and outcome measures, sample population, recruitment, data collection and analysis methods and key findings. Each paper was double checked by at least one other reviewer during the data extraction process.

Quality appraisal

Three reviewers (OK, AH, RS) assessed the risk of bias of the studies that were analysed using the adapted Critical Appraisal Skills Programme risk of bias checklist (Programme, 2018). One study had a high risk of bias (Hiley et al., 2019), one a medium risk of bias (Dickinson et al., 2017) and three a low risk of bias (Hiley et al., 2018; Newton and Fulop, 2017; Upton et al., 2019) (Table 2). Five studies had an unclear risk of bias, due to the selective reporting of information (Gerrish and Chapman, 2017; Iles-Smith and Ersser, 2019; Latter et al., 2009; Marsh et al., 2019; Westwood et al., 2018).

Data analysis and synthesis

A meta-analysis was not possible due to the range of outcome measures across the papers. Instead, a narrative synthesis of the findings was undertaken. A narrative synthesis relies on a textual approach to report the findings (Popay et al., 2006). The narrative synthesis was structured around the types of intervention used, their content and any outcomes measured.

Results

Study characteristics

Five papers provided a definition of 'a clinical academic' with three clearly stating the link between clinical (NHS) and academic (university) environments (Dickinson, Scott, & Edwards, 2017; Gerrish & Chapman, 2017; Upton, Erol, & Penn, 2013). Two papers focused on the research aspect of the clinical academic role (Latter et al. 2009; Westwood et al. 2018) with the link between clinical and academic

settings implied. Five remaining papers did not provide any definition, however the policy and guidance documents referred to and the studies' focuses clearly indicated a link between university and NHS settings (Hiley et al., 2018; Hiley, Jerwood, Proce, Thomas, & Kenkre, 2019; Iles-Smith & Ersser, 2019; Marsh, Walford, Baker, Cannaby, & Singh, 2019; Newton, Fulop, & Head, 2017).

In terms of health professional groupings, one study included all healthcare professionals in its pathway, but grouped 'nurses and midwives' together (Dickinson et al., 2017); seven focused on 'nurses, midwives and allied health professionals' (Hiley et al., 2018; Hiley et al., 2019; Iles-Smith & Ersser, 2019; Newton et al., 2017; Upton et al., 2013; Westwood et al., 2018; Latter et al., 2009), one included 'nurses and midwives' separately (Gerrish & Chapman, 2017); one paper reported only on nurses (Marsh et al., 2019).

Six studies reported on the implementation of a Health Education England (HEE) NIHR Integrated Clinical Academic programme across England (Latter et al., 2009; Westwood et al., 2018; Hiley et al., 2018; Hiley et al., 2019; Gerrish & Chapman, 2017; Newton et al., 2017). Three studies reported on other programmes: the Nurse Clinical Fellowships Programme in Wolverhampton (Marsh et al., 2019), the Clinical Academic Research Career Scheme in Scotland Lothian (Upton et al., 2013), and the Research Capacity Collaboration First into Research Fellowship in Wales (Hiley et al., 2019).

Specific interventions

Table 2 provides an overview of the interventions' characteristics. The clinical academic partnerships described in the site-specific papers (Dickinson et al., 2017; Gerrish & Chapman, 2017; Hiley et al., 2018; Hiley et al., 2019; Iles-Smith & Ersser, 2019; Latter et al., 2009; Marsh et al., 2019; Upton et al., 2013; Westwood et al., 2018) consisted of a range of the following elements:

a) Individual fellowships

Dickinson et al., (2017) reported on UK wide clinical academic fellowship programmes designed to support researchers to combine their clinical and research training and practice; fellowships were

made available to those interested in pre and post-doctoral clinical academic pathways. Fellowship programmes were usually funder-specific, rather than led by a higher education institution (HEI) and/or NHS Trust.

b) Clinical Academic Programmes

Clinical academic programmes reportedly focused on developing clinical academics by providing them with research training (Hiley et al., 2018; Hiley et al., 2019; Marsh et al., 2019; Newton et al., 2017). Newton & Fulop (2017) reported on a one-year fellowship scheme for nurses, midwives and allied health professionals which involved the secondment of fellows to a research department. Marsh et al. (2019) described an MSc in Clinical Nursing with specialist routes into research and leadership. Other opportunities included pre-Masters, pre-doctoral bridging and post-doctoral bridging programmes (Hiley et al., 2018; Hiley et al., 2019). Another scheme was developed with five stages: First into Research, PhD, Post-Doctoral, Early career research and Senior Career Research Fellow (Hiley et al., 2019).

c) Whole pathway approaches

Some HEIs and NHS Trusts partnerships developed whole pathway approaches (Gerrish & Chapman, 2017; Upton et al., 2013; Westwood et al., 2018). These focused on aligning clinical academic pathways with NHS research priorities; this produced benefits for individuals, as well as the healthcare organisation they were working within.

One paper reported on a Clinical Academic Research Career Scheme developed to increase applied research and service improvement projects and boost research career opportunities through competency development and clear career progression pathways, including PhD and post-doctoral clinical research fellowship opportunities (Upton et al., 2013).

Another study reported on a clinical academic partnership model with five elements, (1) practice-relevant research aligned to NHS priorities, (2) sustainable NHS-HEI collaborations, (3) investment commitment, (4) incremental approaches to developing clinical academic leadership and (5)

translation of findings into practice (Westwood et al., 2018). The model focused on individual's clinical academic career development, offered pre-doctoral, doctoral and post-doctoral awards and internships and was developed and underpinned using the AUKUH Clinical and Academic Careers Capability Framework (Latter et al., 2009; Westwood & Richardson, 2014). Specific interventions included: early involvement with ongoing clinical research and research teams, buddying schemes, ongoing communication between clinical managers and academic supervisors, a selection process involving clinical and academic staff, research topics developed by clinical staff and collaborative working to support clinical academic fellows.

Gerrish & Chapman (2017) described an approach incorporating a portfolio of research opportunities into the core components of all nurses' roles. This approach provided flexibility for nurses to engage with different opportunities according to their needs and career aspirations. Clinical academic career progression meant using evidence in nursing practice, undertaking research training, becoming a research active practitioner, leading one's own research and being supported academically through undergraduate, masters, doctoral, and post-doctoral research training programmes. Leadership support was offered from senior nursing staff within academic and clinical settings, as well as from research champions and through opportunities to engage in research secondments. Resources included an Evidence Based Practice Research Council, research study days, workshops and conferences, mentorship and research support for frontline staff. External resources funded by the NIHR included: collaborative scholarly activity, academic research support, fellowship schemes, research secondment opportunities, grant funding application support and research funding. Local and national charities also provided funding for research activities, projects and fellowships.

d) Support solutions

One paper described an intervention, consisting of a guide and toolkit, that had been developed to provide support to those navigating a post-doctoral clinical academic career pathway (Iles-Smith & Ersser, 2019). 'A Practitioner Research Plan and Mentor-Mentee Discussion Guide' together with

'Dissemination, Implementation, Networking, Active Research and Clinical Practice DINARC Toolkit' were developed to plan and enhance clinical academic role development and guide early clinical academics in their discussions with managers and mentors.

Outcomes

The studies had a diverse range of outcome measures. Only three studies considered the progression of clinical academic nurses along their career pathway as a key intervention outcome measure (Gerrish & Chapman, 2017; Hiley et al., 2018; Newton et al., 2017; Upton et al., 2013). Other outcome measures included participants': intentions of clinical academic pathway progression (Hiley et al., 2018; Newton & Fulop, 2017); switching from clinical to academic settings (Gerrish & Chapman, 2017); undertaking further study (Hiley et al., 2018); applying for research funding (Hiley et al., 2018; Upton et al., 2013); being recruited onto clinical academic programmes (Dickinson et al., 2017; Marsh et al., 2019); and completing programmes (Gerrish & Chapman, 2017; Upton et al., 2013). Additional outcome measures were programme recruitment (Hiley et al., 2018; Upton et al., 2013; Westwood et al., 2018), research outputs (Hiley et al., 2018), impact on clinical practice (Hiley et al., 2018; Newton et al., 2017; Upton et al., 2013), and impact on nursing recruitment (Marsh et al., 2019). Table 3 provides an overview of these outcomes.

Barriers and facilitators

In a UK-wide survey of clinical academic fellowship awards, authors found a bottleneck with less nurses progressing onto post-doctoral awards (Dickinson et al. 2017) (Figure 2). Barriers to clinical academic progression reported in the papers included: problems securing funding (Dickinson et al., 2017; Hiley et al., 2018; Newton et al., 2017); difficulties managing personal commitments alongside career progression (Dickinson et al., 2017; Hiley et al., 2018); delayed salary progression (Dickinson et al., 2017) and; tensions splitting clinical and research time (Gerrish & Chapman, 2017; Hiley et al., 2018; Newton et al., 2017). Barriers were mitigated against when appropriate infrastructure for clinical-academic pathways was developed. Facilitators to successful clinical academic pathways

included an emphasis on strong leadership and partnership working between clinical and academic teams.

Latter et al. (2009) identified a need to tackle the lack of clarity about clinical roles for clinical academic nurses, whilst Gerrish & Chapman (2017) cited a lack of understanding of the importance of research among clinical managers. Negative attitudes among nurses, midwives and allied health professionals towards formal research training programmes were also identified as barriers to progression (Upton et al., 2013). However, strong leadership was reported as key to establishing clear clinical academic pathways and securing organisational and managerial support for them (Newton et al., 2017; Dickinson et al., 2017; Hiley et al., 2018). 'Buy in' and professional leadership from Chief Nurses and Directors of Nursing were reported as key to successful clinical academic pathway development (Gerrish & Chapman, 2017).

Many authors reported that their interventions and strategies' successes were down to a joint effort and ongoing cooperation from clinical and academic partners at the beginning of pathway development (Iles-Smith & Ersser, 2019; Upton et al., 2013; Westwood et al., 2018; Iles-Smith & Ersser, 2019). Some authors identified that shared priorities, resources, funding and benefits, together with a sense of alignment, were important for sustained collaborations between clinical and academic pathway partners (Iles-Smith & Ersser, 2019; Upton et al., 2013; Westwood et al., 2018). Support for clinical academics by both organisations, managers and supervisors/mentors contributed to successful outcomes. For instance, many authors found that support increased the likelihood of clinical practice informing clinical academics' research priorities, objectives and progression along their career pathway (Iles-Smith & Ersser, 2019; Upton et al., 2013; Westwood et al., 2018). The role of clinical academic coordinators supporting clinical academics in cross-organisational roles was also cited as beneficial (Westwood et al., 2018).

Discussion

In this review ten papers reporting on clinical academic pathway development for nurses across the UK were identified. The review has confirmed that clinical academic nursing research pathways can be successfully established, with clear links between university and NHS settings. Despite the importance placed on the development of clinical academic pathways for nurses from a political standpoint, a coordinated response and approach to implementation at a national level is clearly lacking.

It is evident that explicit commitment from both partners, alongside transparent communication and appropriate infrastructure are imperative (Murray & James, 2012). The development of a unified clinical academic nursing strategy between partner organisations is needed at the outset (Murray & James, 2012). Strategic alliances involve flexibly sharing organisational resources to achieve mutually relevant benefits and relying on good relationships being established between partner organisations (Ber & Branzei, 2010; Murray & James, 2012; Novotny, Donahue, & Bhalla, 2004). Across NHS and university organisations successful strategic alliances require effective leadership, streamlined management and governance processes, measurable outcomes, financial consensus, clear communication and effective relational processes (Ber & Branzei, 2010; Harlez & Malagueno, 2016; Murray & James, 2012; Novotny et al., 2004). The shared partnership strategy should be articulated and verified at an organisational level, with support from key stakeholders such as Executive staff members, Research and Development (R&D) departments and Chief Nurses (Hartman & Crow, 2002; McCance, Fitzsimons, & Armstrong, 2006). In addition, it is important to embed the agreed strategy within existing and overarching healthcare and university strategy documents, to raise its profile at a cross-organisational level, as well as aligning it with R&D and Nursing strategies. In doing so, criteria for developing the nursing clinical academic agenda can be articulated through strategy development; building capacity; infrastructure; partnership working; research in practice; and

outcome assessments (McCance et al., 2006). This will help ensure consistent messaging about the clinical academic nursing research pathway's purpose and function is achieved.

Various funders were identified as contributing to the development, implementation and maintenance of clinical academic pathway programmes and interventions. For any clinical academic strategy to be actionable, it must be underpinned by a transparent and realistic financial commitment over time. This is especially important in a post Brexit era, where European Union funding is likely to be prioritised for member states (Frenk et al. 2015; Hiley et al. 2019). Furthermore, the Covid-19 global pandemic has heightened uncertainties around research funding (Lacobucci, 2020). In addition, nurses may have concerns around the continuation of their clinical academic careers after completing this training due to a lack of opportunities at their employer organisation, suggesting that research is not viewed as a priority in many clinical settings (Upton et al., 2013). To address this, different funding models should be considered, with shared partnership models likely to be more sustainable, as well as fostering a mutual sense of commitment and investment. Potential financial resources, such as charities and industry, to support pathway development, should also be mapped out and agreed early. Where possible, the financial resources committed should underwrite pathways for a number of years, to allow changes to nursing research cultures to occur, with relevant short, medium and long-term outcome measures in place (Novotny et al., 2004).

One way of achieving a robust clinical academic infrastructure is through offering nurses protected time for research to develop these skill sets and build knowledge away from their clinical roles and responsibilities (Windsor et al., 2015). Protected time might be used to develop research grant and fellowship applications, undertake systematic reviews, write up research publications, undertake PhD or other doctoral level studies or to support post-doctoral researchers to become integrated within an established research team (Windsor et al., 2015).

A paucity of clinical research pathway opportunities has meant that nurses have previously entered and exited them at different career stages and with varying levels of experience. Compared to allied health professionals, nurses have limited success in developing clinical research leadership roles and developing and initiating their own research (Trust, 2018). Programmes such as the 70@70 Senior Nurse Research Leader Programme and the NIHR's Clinical Research Nursing Strategy (Research, 2017, 2019) have gone some way to meeting this challenge, but more work remains to be done. Lack of opportunity has led to challenges in recruiting clinical academic postholders, due to a limited pool of suitably qualified clinical academic nurses, especially at post-doctoral level (Upton et al.; 2013). In addition, nurses may defer from applying for clinical academic positions due to their lack of profile within healthcare organisations, (Upton et al.; 2013). As a result, few post-doctoral nurses have pursued senior clinical research training awards (Dickinson et al. 2017). For these reasons, it is imperative that clinical academic training pathways for nurses are flexible, adaptable and inclusive (Windsor et al., 2015), with clear career progression pathway opportunities established within partner organisations. Care should also be taken to reduce variability in clinical academic pathway opportunities across different geographical locations; the strengths of individual pathways must be collated and shared to diminish variations in quality and outcomes.

The importance of engaging nurses early in their careers, by addressing pre-requisite qualifications and skills, is likely to lead to retention of research within their roles (Windsor et al., 2015). Engagement and skill development can be supported and nourished through successful role modelling from mentors or supervisors (Hiley et al. 2019). However, the current lack of senior clinical academic nurses means that role modelling is missing for nurses wishing to pursue more senior clinical academic training pathways (Dickinson et al., 2017) and reinforces the need for more accessible training programmes. Some interventions included in this review involved supervision or mentorship from a senior researcher, highlighting the value of the mentor relationship. Effective mentoring can facilitate the development of clinical research nursing careers, as well as the

expansion of professional networks, career opportunities, enhanced problem-solving skills, increased resilience, wellbeing and self-confidence (Davey et al., 2020; Henshall, Davey, & Jackson, 2020; Windsor et al., 2015). In addition, experienced mentorship can provide valuable learning around how clinical and academic role components can be clearly integrated and embedded within existing multidisciplinary research and clinical teams (Windsor et al. 2015).

Whilst this review was conducted rigorously, it has limitations. The date search parameters aligned with the release of a seminal document raising the profile of the potential for UK-based nurses to pursue clinical academic careers (Health, 2006). For this reason, any papers published before this date were not included in the review. Additionally, the risk of bias of many studies included in the review was high or moderate (Table 2) and any findings originating from these papers should be interpreted with caution. Evaluation studies (which did not undergo quality appraisal) were included as they provided an important overview of relevant clinical academic pathway schemes across the UK; their methodological rigor may have been lower as a result. Finally, the review did not identify any discontinued clinical academic nursing schemes; their inclusion in the review may have provided insights and learning into reasons for their discontinuation. A lack of publications on these schemes may be due to publication bias and the sole reporting of schemes that indicated positive outcomes.

Conclusion

A review of interventions and outcomes of clinical academic pathways for nurses has provided valuable information pertaining to their implementation in the UK over the past 15 years. Findings can be used to progress clinical academic pathway development for nurses by identifying key drivers for successful implementation, as well as areas for improvement. Authors highlighted that although a range of initiatives were developed, many of them lacked sustained or cohesive implementation. Furthermore, the quality of the included studies that were evaluated was suboptimal. For clinical

academic research careers to be viewed as a viable career option for nurses, more high quality evidence-based programmes need to be developed and rigorously evaluated to provide the support networks, resources, infrastructure, clarity of vision and 'buy in' from key stakeholders, including nurses themselves.

Relevance to Clinical Practice

Clinical academic career development is a complex process that involves multiple factors. Investment in clinical academics in research can clearly develop practice and improve patient outcomes; however, this is only possible in nursing if the pathway itself is designed with a strong vision for success. Pathways should ideally have aligned strategic aims, objectives and key deliverable outcomes that are embedded within a working partnership between clinical settings and academic institutions. The success of the role can be evidenced by organisational and financial support, role opportunities and through joint objective setting (McCance et al., 2006).

There does not appear to be one set route to achieving a successful clinical academic research career in nursing. However, this review has highlighted key principles that need to be adhered to, to increase the likelihood of success. These include the importance of strong clinical and academic leadership, identifying a strategic vision for success, clear role modelling and mentorship, clear and transparent communication between stakeholders, and commitment from partner organisations to embed research into the clinical role and vice-versa. An understanding of other key barriers and facilitators to sustaining these roles and pathways is also necessary; these may include a lack of role definition and role modelling, clinical practice time pressures, the level of organisational and managerial support available, financial resources and job opportunities. Strong strategic leadership is required to enable clinical academic nursing research pathway opportunities to become mainstream for nurses. Those working within clinical nursing practice need to be ready to embrace a

different way of working, with a number of external partners. By learning and developing from others, sustainable structures for research career development in practice can be formed, with positive impacts on patient care, staff satisfaction and organisational effectiveness.

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What does this paper contribute to the wider global clinical community?

- This review provides a comprehensive overview of the strategies, innovations and initiatives developed in the UK to promote clinical academic career pathways for nurses; these findings are transferable to international healthcare settings interested in embedding career opportunities for nurses to optimise patient care and service delivery.
- Core components for successfully optimising clinical academic research pathways for nurses include strong leadership, transparent communication, unified partnerships between stakeholder organisations and well-defined strategic aims, objectives and outcome measures.