


REVIEW

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 September 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.

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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

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

1 | 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 et al., 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 et al., 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 et al., 2018; Commission, 2018; Richardson et al., 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

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.

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 and 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 et al., 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.

1.1 | 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

2 | METHODS

2.1 | 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 (File S1) were followed (Moher et al., 2009).

2.2 | Search strategy

An electronic database search was conducted in PubMed, CINAHL, the British Nursing Database and PsychInfo for any relevant articles published between September 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 as follows: ("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").

2.3 | Eligibility criteria

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

2.4 | 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.

TABLE 1 Criteria for conducting a systematised review

Search	Appraisal	Synthesis	Analysis
Comprehensive searches without extensive grey literature search, checking reference lists, contacting organisations for their internal reports	Adapted CASP Qualitative Checklist	Narrative with tabula accompaniment	What is known; some uncertainty about findings, limitations of methodology

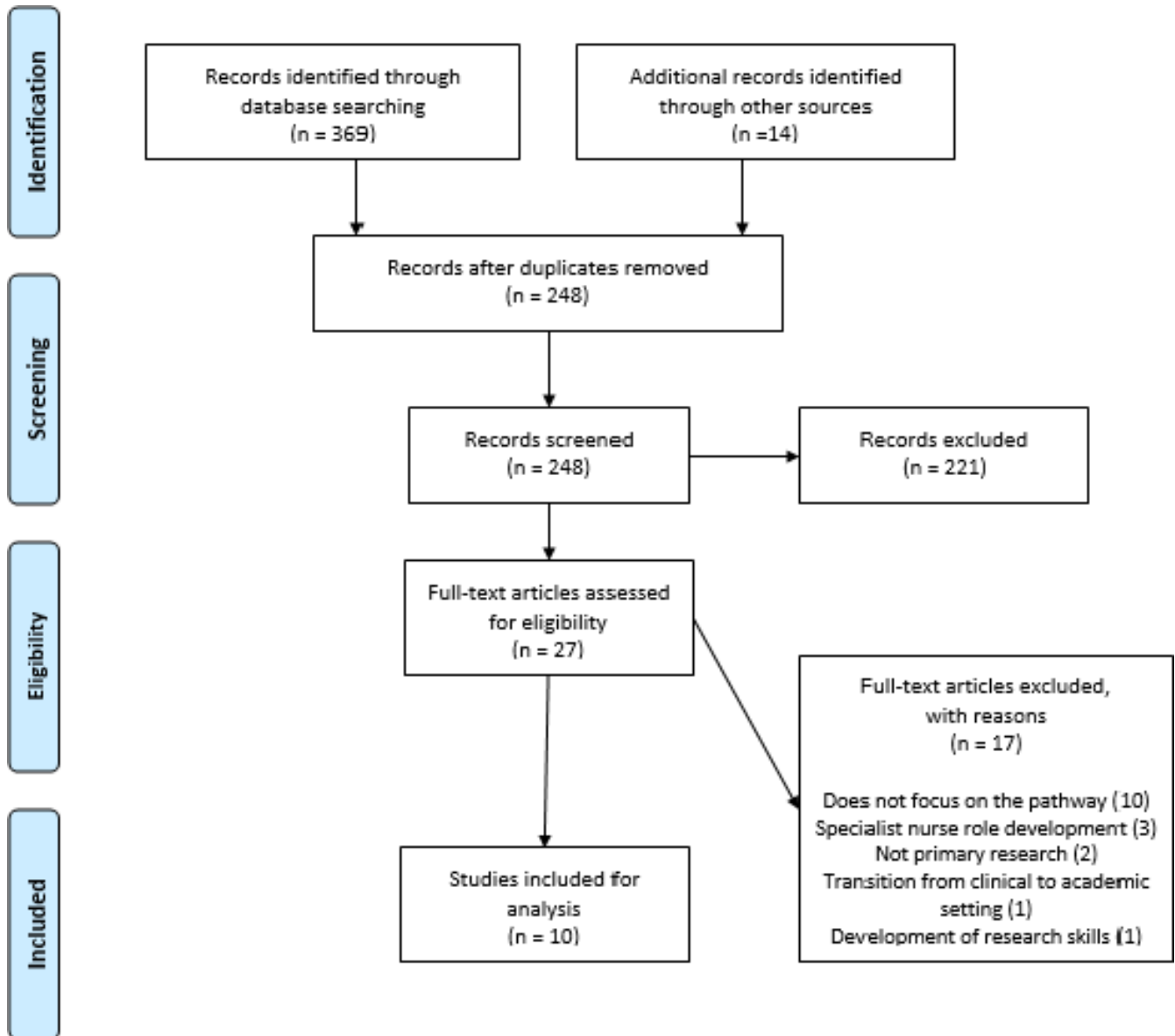


FIGURE 1 PRISMA 2009 flow chart (adapted from Moher et al., 2009).

- 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).

2.5 | Exclusion criteria

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

2.6 | 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).

2.7 | Data extraction

Three reviewers (OK, AH and 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.

2.8 | 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 et al., 2017; Upton et al., 2013) (Table 2). Five studies had an unclear risk of bias, due to the selective reporting of information (Gerrish & Chapman, 2017; Iles-Smith & Ersser, 2019; Latter et al., 2009; Marsh et al., 2019; Westwood et al., 2018).

2.9 | 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.

3 | RESULTS

3.1 | 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 et al., 2017; Gerrish & Chapman, 2017; Upton et al., 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, 2019; Iles-Smith & Ersser, 2019; Marsh et al., 2019; Newton et al., 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, 2019; Iles-Smith & Ersser, 2019; Latter et al., 2009; Newton et al., 2017; Upton et al., 2013; Westwood et al., 2018); one included 'nurses and midwives' separately (Gerrish & Chapman, 2017); and 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 (Gerrish & Chapman, 2017; Hiley et al., 2018, 2019; Latter et al., 2009; Newton et al., 2017; Westwood et al., 2018). 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).

3.2 | 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, 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:

3.2.1 | 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.

3.2.2 | Clinical academic programmes

Clinical academic programmes reportedly focused on developing clinical academics by providing them with research training (Hiley et al., 2018, 2019; Marsh et al., 2019; Newton et al., 2017). Newton et al. (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, predoctoral bridging and post-doctoral bridging programmes (Hiley et al., 2018, 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).

TABLE 2 Overview of included studies

Authors, year	Type of study	Risk of bias	Population	Initiative, intervention or program	Partners	Funding
Dickinson et al. (2017)	Survey	Medium	Allied Health Professionals, Pharmacists and Healthcare Scientists who held Clinical and Health Research Fellowships	Fellowships awarded to promising candidates to form bridges between clinical and academic environments.	Not reported	13 Funders ^a ; specific funding for nurses not reported
Gerrish and Chapman (2017)	Evaluation Report	Unclear	Nurses and midwives	Operationalisation of Integrated Clinical Academic framework in NHS Trust: aimed at supporting clinical academic careers in nursing with a wide portfolio of opportunities for junior nurses to engage in research-related activities	Sheffield Teaching Hospitals NHS Trust Sheffield University	NIHR/Health Education England National charities University sector
Hiley et al. (2018)	Survey and semi-structured interviews	Low	Allied Health Professionals, Pharmacists and Healthcare Scientists	West Midlands Clinical Academic Internship Programme (CAIP) and Masters to Doctorate Bridging Programme (MDBP) 2014–2017	University of Birmingham Birmingham Women's & Children's Hospital University Hospitals Birmingham	Health Education England
Hiley et al. (2019)	Case study	High	Allied Health Professionals, Pharmacists and Healthcare Scientists	Clinical academic career programmes developed for junior career level nurses, midwives and Allied Health Professionals, Pharmacists and Healthcare Scientists (NMAHPPS)	University of Birmingham Birmingham Women's & Children's Hospital University Hospitals Birmingham	Health Education England Health and Care Research Wales Tenovus Cancer Care European Social Fund

(Continues)

Table 2 (Continued)

Authors, year	Type of study	Risk of bias	Population	Initiative, intervention or program	Partners	Funding
Iles-Smith and Ersser (2019)	Tool evaluation	Unclear	Post-doctoral clinical academics	Practitioner Research Plan and Mentor–Mentee Discussion Guide; developed to identify essential elements required to successfully navigate clinical academic pathways Dissemination, Implementation, Networking, Active Research and Clinical (DINARC) practice Toolkit	University teaching hospital	Not reported
Latter et al. (2009)	Evaluation Report	Unclear	Open to 5 & 7 & Clinical Chair Nursing Posts	Pilot clinical academic career initiative with addition of doctoral studentship, post-doctoral fellowship posts and clinical chair posts	University of Southampton Local NHS Trusts	NHS Education South Central South Central Strategic Health Authority
Marsh et al. (2019)	Evaluation Report	Unclear	Open to all registered nurses	Nurse Clinical Fellowship Programme: nurses undertake BSc or MSc in Clinical Nursing with specialised research routes	University of Wolverhampton Royal Wolverhampton NHS Trust	Royal Wolverhampton NHS Trust
Newton et al. (2017)	Semi-structured interviews and questionnaires	Low	Allied Health Professionals, Pharmacists and Healthcare Scientists (NMAHPPS)	2015 and 2016 Health Education England/ Collaborations for Leadership in Applied Health Research and Care (CLAHRC) Research Fellowship Scheme	National Institute for Health Research (NIHR)	National Institute for Health Research (NIHR)
Upton et al. (2019)	Mixed Methods Evaluation	Low	Allied Health Professionals, Pharmacists and Healthcare Scientists (NMAHPPS)	Clinical Academic Research Career Scheme to increase applied research, lead improvements in priority service areas and increase research career opportunities	University of Edinburgh	NHS Education for Scotland NHS Lothian University of Edinburgh Edinburgh Napier University Queen Margaret University Edinburgh

(Continues)

Table 2 (Continued)

Authors, year	Type of study	Risk of bias	Population	Initiative, intervention or program	Partners	Funding
Westwood et al. (2018)	Evaluation	Unclear	Allied Health Professionals, Pharmacists and Healthcare Scientists (NMAHPPS)	Clinical academic partnership model, that compliments National Institute for Health Research (NIHR) personal awards programmes, formed through a strategic relationship between partners Clinical academic opportunities for different stages of career	University of Southampton NHS organisations	University of Southampton, National Institute for Health Research (NIHR) Health Education England (HEE)

^a13 funders: the Medical, Dental and Veterinary Schools Councils and Association of Medical Research Charities: Academy of Medical Sciences; Action Medical Research; Alzheimer's Research UK; British Heart Foundation; Cancer Research UK; Chief Scientist Office (Scotland); Health and Care Research Wales; Health & Social Care R&D, Northern Ireland; Higher Education Funding Council for England; Medical Research Council; National Institute for Health Research (including schemes supported jointly by Health Education England and NIHR); Stroke Association; Wellcome. Additional data were also supplied by NHS Education for Scotland, the Northern Ireland Medical and Dental Training Agency and the Wales Deanery.

3.2.3 | 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 predoctoral, 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 the following: 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 and 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.

3.2.4 | 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'

TABLE 3 Intervention outcomes reported

Authors, year	No of participants	Outcome measure	Reported outcome	
			Quantitative	Qualitative
Dickinson et al., 2017	<i>n</i> = 2,840 (105 nurses and midwives)	Fellowships awarded (<i>n</i>)	105 in 2017, compared to 37 in 2009	
Gerrish & Chapman, 2017	<i>n</i> = 3 (case studies) n/a to the rest of the evaluation	Completion of individual programmes (<i>n</i>) in 6 years Secured doctoral and post-doctoral fellowships (<i>n</i>) Progression on clinical academic pathway	17 nurses completed internships/MSc Clinical Research programme 3 nurses secured doctoral or post-doctoral fellowships	A 'few' nurses left after award completion to take up university posts
Hiley et al., 2018	<i>n</i> = 53	Participants submitting HEE/NIHR Integrated Clinical Academic programme applications (<i>n</i>) Participants declaring interest in clinical academic career after completion (<i>n</i> , %) Participants continuing with study (<i>n</i> , %) Publications (<i>n</i>) Participants awarded research funding (%) Participants continued with research work initiated during programme Gained promotion (%) Impact on quality of care Impact on teamwork	17 submitted; 10 awarded; 3 awaiting outcome 95% (<i>n</i> = 40) on the Clinical Academic Internship Programme and 80% (<i>n</i> = 8) on Masters to Doctorate Bridging Programme 40% (<i>n</i> = 17) on the Clinical Academic Internship Programme and 40% (<i>n</i> = 4) on the Masters to Doctorate Bridging Programme >100 23% on the Clinical Academic Internship Programme and 60% on the Masters to Doctorate Bridging Programme 51% (<i>n</i> = 22) >25% 55% (<i>n</i> = 23) reported using evidence to inform clinical practice 40% (<i>n</i> = 4) reported better understanding of leadership and team interaction	Two thirds reported programme had contributed to funding success
Hiley et al., 2019	<i>n</i> = 3	Impact on clinical practice Impact on research role Healthcare professionals awarded fellowships (<i>n</i>)	89 since 2005 (Research Capacity Building Collaboration) 97 since 2014 (pre-Master internship) 30 since 2014 (predoctoral bridging)	Perception of becoming an 'evidence-based' practitioner Perceived being a more informed researcher

(Continues)

Table 3 (Continued)

Authors, year	No of participants	Outcome measure	Reported outcome	
			Quantitative	Qualitative
Iles-Smith & Ersser, 2019	not reported	Effectiveness of the DINARC©		Reported to aid clinical academics in navigating early careers and guider managers
Latter et al., 2009	n/a	Implementation of a clinical academic pathway		Successfully implemented; evaluation planned
Marsh et al., 2019	n/a	Vacancies (<i>n</i>)		Vacancies at Trust decreased 'dramatically'
		Recruitment to Nurse Clinical Fellowship Programme (<i>n</i>)	100 nurses, with second cohort of 60	
		International nurses who gained UK nurse registration (<i>n</i>)	>60; overall pass rate 97.7%	
Newton et al. (2017)	<i>n</i> = 22	Impact on clinical research role		Reported to have supported development as a clinical researcher: substantial research outputs increased interest in research developed as a clinician-interest and success in developing clinical academic career improved communication between clinical and academic staff
Upton et al., 2013	<i>n</i> = 46	NMAHPS achieving research higher degrees over 29 months (<i>n</i>)	2	
		NMAHPS eligible to take up consultant or senior academic posts over 29 months (<i>n</i>)	4	
		Research studies completed over 29 months (<i>n</i>)	4	
		Publications in peer reviewed journals over 29 months (<i>n</i>)	6	
		Study findings with potential demonstrable change to practice/service delivery over 29 months (<i>n</i>)	4	
		Income generated by successful research grant applications over 29 months (£)	95,336 (7 grants)	
		Experiences of programmes		Overall positive Limited impact on practice Support continuation of programme Focus on clinical academic career development needed Patient and public involvement plan in progress

(Continues)

Table 3 (Continued)

Authors, year	No of participants	Outcome measure	Reported outcome	
			Quantitative	Qualitative
Westwood et al. (2018)	n/a	Award uptake and completion	74 completed awards at Masters, five at doctoral and nine at post-doctoral level since 2008 36 currently supported NMAHPs, including Clinical Doctoral Research Nurses 10 planned to start in 2017/18 3 clinical doctoral research fellows, 5 clinical lecturers and 2 senior clinical lecturers supported 3 clinical professors supported	

were developed to plan and enhance clinical academic role development and guide early clinical academics in their discussions with managers and mentors.

3.3 | 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 et al., 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.

3.4 | 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 and 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 (Dickinson et al., 2017; Hiley et al., 2018; Newton et al., 2017). '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; Iles-Smith & Ersser, 2019; Upton et al., 2013; Westwood et al., 2018). 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).

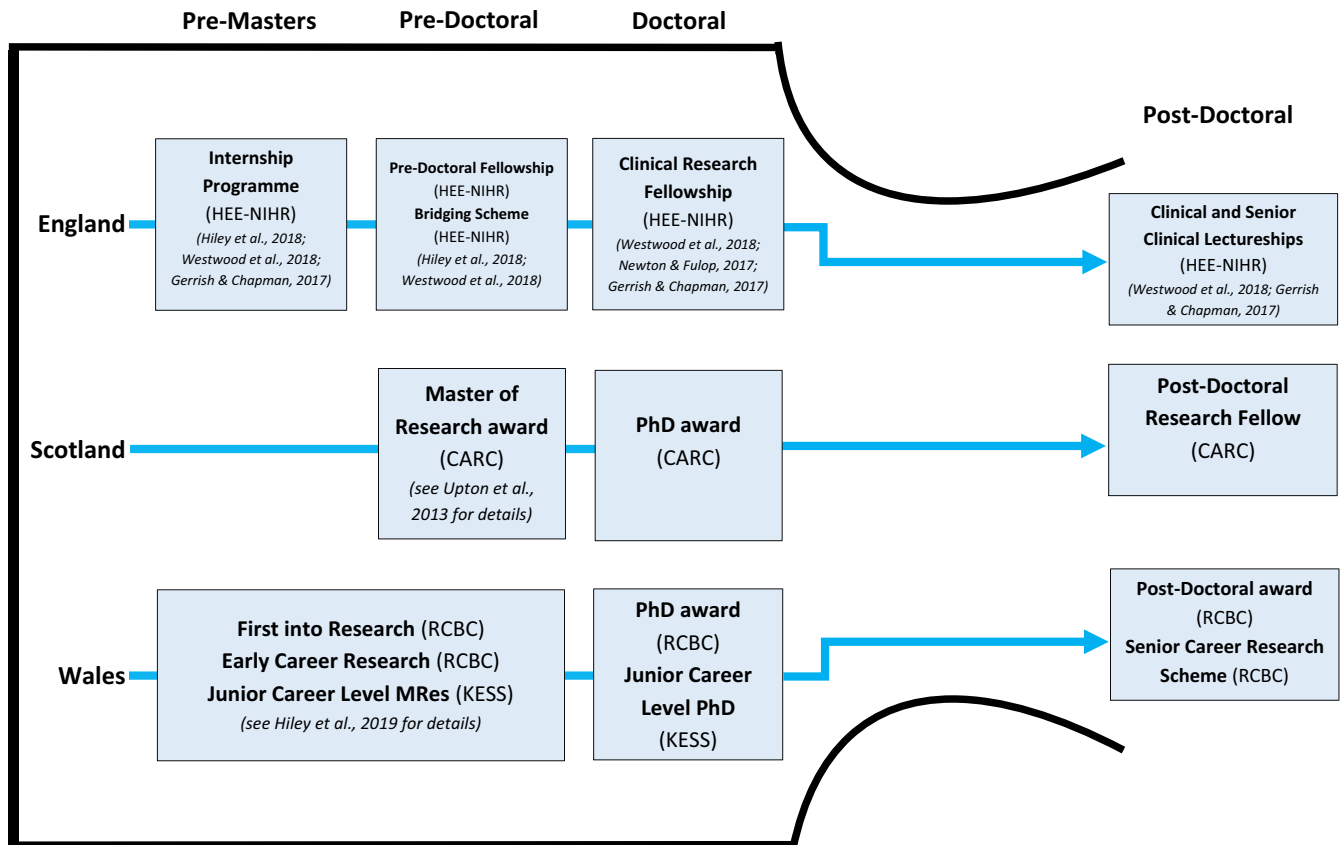


FIGURE 2 A visual map showing elements of the Clinical Academic pathways for nurses across the UK nations. HEE-NIHR—Health Education England-National Institute for Health Research; CARC—Clinical Academic Research Career; RCBC—Research Capacity Building Collaboration; KESS—Knowledge Economy Skills Scholarship. Please note: No studies were based in Northern Ireland.

4 | 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 et al., 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 et al., 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 post-holders, 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 prerequisite 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, well-being and self-confidence (Davey et al., 2020; Henshall et al., 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.

5 | 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.

6 | 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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CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

CH led the study and prepared the first and subsequent drafts of the manuscript, with collated input from all authors. OK, AH and RS undertook the literature searching, screening, data extraction and quality appraisal processes. All authors provided substantial contributions on the data interpretation and revising it critically for important intellectual content. All authors have given final approval of the version to be published.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

- Ber, M., & Branzei, O. (2010). (Re)forming strategic cross sector partnerships: relational processes of social innovation. *Business and Society*, 49(1), 140–172.
- Bramley, L., Manning, J., & Cooper, J. (2018). Engaging and developing frontline clinical nurses to drive care excellence: Evaluating the Chief Nurse Excellence in Care Junior Fellowship initiative. *Journal of Research in Nursing*, 23(8), 678–689.
- Carrick-Sen, D., Baillie, L., Deaton, C., Lowes, L., McCabe, C., Norton, C., Tod, A., & Robb, E. (2015). Improving nursing research activity: The importance of leadership. *British Journal of Nursing*, 24, 751.
- Carrick-Sen, D., Moore, A., Davidson, P., Gendong, H., & Jackson, D. (2019). International perspectives of nurses, midwives and allied health professionals' clinical academic roles: are we at tipping point? *International Journal of Practice-based Learning in Health and Social Care*, 7(2), 1–15.
- Carrick-Sen, D., Richardson, A., Moore, A., & Dolan, S. (2016). *Transforming Healthcare Through Clinical Academic Roles in Nursing, Midwifery and Allied Health Professions: A Practical Resource for Healthcare Provider Organisations*, AUKUH, London. Retrieved from: <https://www.medschools.ac.uk/media/2325/aukuh-transforming-healthcare.pdf>
- Commission, C. Q. (2018). *Quality Improvement in Hospital Trusts: Sharing learning from trusts on a journey of QI*. Commission, C. Q.
- Davey, Z., Jackson, D., & Henshall, C. (2020). The value of nurse mentoring relationships: lessons learnt from a work-based resilience enhancement programme for nurses working in the forensic setting. *International Journal of Mental Health Nursing*, 29(5), 992–1001.
- Dickinson, J., Scott, J., & Edwards, P. (2017). *UK Wide Survey of Clinical and Health Research Fellowships*. Retrieved from: <https://mrc.ukri.org/publications/browse/clinical-and-health-research-fellowship-s-survey-2017/>
- Finch, J. (2007). *Developing the best research professionals. Qualified graduate nurses: recommendations for preparing and supporting clinical academic nurses of the future*. Retrieved from: <https://www.ukrc.org/wp-content/uploads/2014/07/Nurses-report-August-07-Web.pdf>
- Francis, R. (2013). *Report of the Mid-Staffordshire NHS Foundation Trust Public Inquiry*. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/279124/0947.pdf
- Frenk, C., Hunt, T., Partridge, L., Thornton, J., & Wyatt, T. (2015). *UK research and the European Union. The role of the EU in funding UK research*. The Royal Society.
- Gerrish, K., & Chapman, H. (2017). Implementing Clinical Academic Careers in Nursing: an exemplar of a large healthcare organisation in the United Kingdom. *Journal of Research in Nursing*, 15(3), 215–225.
- Grant, M., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26(2), 91–108. <https://doi.org/10.1111/j.1471-1842.2009.00848.x>
- Harlez, Y., & Malagueno, R. (2016). Examining the joint effects of strategic priorities, use of management control systems, and personal background on hospital performance. *Management Accounting Research*, 30, 2–17.

- Hartman, S., & Crow, S. (2002). Executive development in healthcare during times of turbulence: top management perceptions and recommendations. *Journal of Management in Medicine*, 16(5), 359–370. <https://doi.org/10.1108/026892302110446535>.
- Health, D. O., (2006). *Modernising nursing careers setting the direction*. Retrieved from: <http://www.nursingleadership.org.uk/publications/settingthedirection.pdf>
- Henshall, C., Davey, Z., & Jackson, D. (2020). The implementation and evaluation of a resilience enhancement programme for nurses working in the forensic setting. *International Journal of Mental Health Nursing*, 29(3), 508–520.
- Hiley, J., Begg, C., Banks, L., Harper, L., Swift, A., & Topping, A. (2018). *West Midlands Clinical Academic Careers Programmes for Nurses, Midwives and Allied Health Professions, Pharmacists and Healthcare Scientists (NMAHPPS)*. Retrieved from: <https://www.birminghamhealthpartners.co.uk/wp-content/uploads/2018/11/West-Mids-Clinical-Academic-Careers-Programmes-Evaluation-Report-Oct-2018-4.pdf>
- Hiley, J., Jerwood, J., Proce, J., Thomas, S., & Kenkre, J. (2019). Combining a career in clinical practice and research: The benefits at junior career level. *International Journal of Practice-based Learning in Health and Social Care*, 7(2), 36–45.
- Iles-Smith, H., & Ersser, S. (2019). The DINARC Toolkit - clinical academic research capacity building and post-doctoral development for nurses, midwives and allied health professionals. *International Journal of Practice-based Learning in Health and Social Care*, 7(2), 25–35.
- Jonker, L., Fisher, S., & Dagnan, D. (2020). Patients admitted to more research active hospitals have more confidence in staff and are better informed about their condition and medication: results from a retrospective cross-sectional study. *J Eval Clin Pract*, 26(1), 203–208.
- Lacobucci, G. (2020). Covid-19 makes the future of UK clinical research uncertain. *BMJ* 369, 1619 <https://doi.org/10.1136/bmj.m1619>.
- Latter, S., Macleod Clark, J., Geddes, C., & Kitsel, F. (2009). Implementing a clinical academic career pathway in nursing: criteria for success and challenges ahead. *Journal of Research in Nursing*, 14(2), 137–148.
- Marsh, Z., Walford, L., Baker, R., Cannaby, A.-M., & Singh, B. (2019). Attracting and retaining nurses through a clinical fellowship programme. *British Journal of Nursing*, 28(18), 1207–1209 <https://doi.org/10.12968/bjon.2019.28.18.1207>.
- McCance, T., Fitzsimons, D., & Armstrong, C. (2006). Developing a best practice framework to benchmark research and development activity in nursing and midwifery. *Journal of Research in Nursing*, 11(2), 160–171.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. & Group, T. P. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed1000097>
- Murray, T., & James, D. (2012). Evaluation of an academic service partnership using a strategic alliance framework. *Nursing Outlook*, 60(4), e17–22.
- Newton, V., Fulop, N., & Head, A. (2017). *Evaluation Report: HEE North Central and East London and NIHR CLAHRC North Thames Clinical Nurse/Midwife/AHP (NMAHP) Academic Fellowship Scheme*. Retrieved from: <http://clahrc-norththames.nihr.ac.uk/wp-content/uploads/2017/12/Evaluation-Report-HEE-NCEL-CLAHRC-Developing-Clinical-NMAHP-Academics-Fellowship-Scheme.pdf>
- Novotny, J., Donahue, M., & Bhalla, B. (2004). The clinical partnership as strategic alliance. *Journal of Professional Nursing*, 20(4), 216–221.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K., & Duffy, S. (2006). *Guidance on the Conduct of Narrative Synthesis in Systematic Reviews: A product form the ESRC methods programme*. <https://doi.org/10.13140/2.1.1018.4643>
- Programme, C. A. S. (2018). *CASP Qualitative Checklist*. Retrieved from <http://casp-uk.net/wp-content/uploads/2018/01/CASP-Qualitative-Checklist-2018.pdf>
- Research, N. I. f. H. (2017). *NIHR Clinical Research Strategy 2017–2020*. Retrieved from www.nihr.ac.uk/documents/nihr-clinical-research-nurse-strategy-2017-2020/11501
- Research, N. I. f. H. (2019). *70@70 NIHR Senior Nurse and Midwife Research Leader Programme*. Retrieved from www.nihr.ac.uk/documents/7070-nihr-senior-nurse-and-midwife-research-leader-programme/22750
- Richardson, A., Avery, M., & Westwood, G. (2019). *A cross funder survey of enablers and barriers to progressing a research related academic career in the non-medical health professions*. Retrieved from: <http://www.southampton.ac.uk/~assets/doc/Cross%20Funder%20Survey%20Summary%20Document%20April%202019.pdf>
- Scotland, N. (2014). *Setting the direction for nursing and midwifery education in Scotland-The strategic aims from the Chief Nursing Officer's education review 10*. Retrieved from: [https://www.gov.scot/publications/setting-direction-nursing-midwifery-education-scotland/Trust, L. T. H. N. F. \(2018\). Clinical research careers for the non-medical professions' strategy 2018-2021. Retrieved from: https://www.leedsth.nhs.uk/assets/Uploads/2c59b54a98/Non-Medical-Clinical-Research-Career-Strategy-v3.pdf](https://www.gov.scot/publications/setting-direction-nursing-midwifery-education-scotland/Trust, L. T. H. N. F. (2018). Clinical research careers for the non-medical professions' strategy 2018-2021. Retrieved from: https://www.leedsth.nhs.uk/assets/Uploads/2c59b54a98/Non-Medical-Clinical-Research-Career-Strategy-v3.pdf)
- Turner, J., Smith, J., Bryant, K., Haynes, T., Stewart, M., Kuo, D., Harris, K., McCoy, S., Ovelady, N., Sullivan, G., & Yearly, K. (2017). Community building community: The distinct benefits of community partners building other communities' capacity to conduct health research. *Progress in Community Health Partnerships: Research, Education and Action*, 11(1), 81–86. <https://doi.org/10.1353/cpr.2017.0010>.
- Unit, N. R. (2017). *A clinical academic approach for nurses, midwives and allied health professionals-it's a no brainer!* Retrieved from: <https://www.nmahp-ru.ac.uk/media/microsites/nmahp-ru/documents/Clinical-academic-approach-for-nurses-midwives--AHPs.pdf>
- Upton, D., Upton, P., Erol, L., & Penn, F. (2013). *Phase 1 Evaluation of Lothian's Nursing, Midwifery and Allied Health Professions (NMAHP) Clinical Academic Research Careers (CARC) Scheme*. Retrieved from: <https://www.ed.ac.uk/files/imports/fileManager/Report%20Phase%201%20Evaluation%20of%20Lothian%27s%20NMAHPs%20CARC%20Scheme%20FINAL.pdf>
- Walport, M. (2005). *Report of the academic careers sub-committee of modernising medical careers and UK Clinical Research Collaboration*. Retrieved from: https://www.ukcrc.org/wp-content/uploads/2014/03/Medically_and_Dentally-qualified_Academic_Staff_Report.pdf
- Westwood, G., & Richardson, A. (2014). *Clinical academic careers capability framework*. AUKUH.
- Westwood, G., Richardson, A., Latter, S., Macleod Clark, J., & Fader, M. (2018). Building clinical academic leadership capacity: sustainability through partnership. *Journal of Research in Nursing*, 23(4), 346–357. <https://doi.org/10.1177/1744987117748348>
- Windsor, J., Seale, J., Hanney, R., Chapman, A., Grigg, M., Choong, P., Mackay, A., Smithers, B., Churchill, J., Carney, S., Smith, J., Wainer, Z., Talley, N., & Gladman, M. (2015). Building a sustainable clinical academic workforce to meet the future healthcare needs of Australia and New Zealand: report from the first summit meeting. *Internal Medicine Journal*, 45(9), 965–971.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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APPENDIX 1

Data extraction template items

	Paper (reference)
definition of 'a clinical academic' used	
Setting	Country of study (UK, England, Scotland, NI, Wales) Geographical area Study setting if healthcare provider or academic setting
Aims	What was the aim/objective of the study?
Population	Who was included, nursing specialty (e.g. child, adult, MH) Banding Professional role
Intervention	Description of intervention How was it developed? where was the intervention delivered? home/trust/trust and uni/uni based self-directed or facilitated who funded the intervention (e.g. internal or external funding)
Recruitment and sample	Eligibility criteria Who was recruited? For example, organisations, individuals, both Recruitment method How many invited Response rate / Number of participants Attrition rate
Methodology	What was the methodological approach—qual, quant, mixed? What was the design of the study? e.g. (1) phenomenology. (2) ethnography. (3) grounded theory. (4) case study Data collection method Data analysis method Participants' characteristics
Findings	What was found?
Outcomes	What were the outcome measures? What were the outcomes (effectiveness of initiatives/strategies)? Anything else of interest? Barriers and facilitators
Quality	1. Was there a clear statement of the research aim? <ul style="list-style-type: none"> • what was the goal of the research • why it was thought important • its relevance 2. Was the methodology appropriate? 3. Was the research design appropriate? <ul style="list-style-type: none"> • if the researcher has justified the research design (e.g. have they discussed how they decided which method to use) 4. Was the recruitment strategy appropriate? <ul style="list-style-type: none"> • If the researcher has explained how the participants were selected • If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study • If there are any discussions around recruitment (e.g. why some people chose not to take part)

	Paper (reference)
	<p>5. Was data collected in an appropriate way?</p> <ul style="list-style-type: none"> • If the setting for the data collection was justified • If it is clear how data were collected (e.g. focus group, semi-structured interview etc.) • If the researcher has justified the methods chosen • If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide) • If methods were modified during the study. If so, has the researcher explained how and why • If the form of data is clear (e.g. tape recordings, video material, notes etc.) • If the researcher has discussed saturation of data <p>testing/piloting the tool, for example questionnaire</p>
	<p>6. Has the relationship between researcher and participants adequately considered?</p> <ul style="list-style-type: none"> • If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions (b) data collection, including sample recruitment and choice of location • How the researcher responded to events during the study and whether they considered the implications of any changes in the research design
	<p>7. Have ethical issues been taken into consideration?</p> <ul style="list-style-type: none"> • If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained • If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study) • If approval has been sought from the ethics committee
	<p>8. Was data analysis rigorous?</p> <ul style="list-style-type: none"> • If there is an in-depth description of the analysis process • If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data • Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process • If sufficient data are presented to support the findings • To what extent contradictory data are taken into account • Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation
	<p>9. Is there a clear statement of findings?</p> <ul style="list-style-type: none"> • If the findings are explicit • If there is adequate discussion of the evidence both for and against the researcher's arguments • If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst) • If the findings are discussed in relation to the original research question
	<p>10. How valuable is the research (including generalisability/transferability)</p> <ul style="list-style-type: none"> • If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy or relevant research-based literature) • If they identify new areas where research is necessary • If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used
	<p>Overall quality: high (2), moderate (1), low (0) 10 points max 0–3—low 4–7—medium 8–10—high</p>
Discussions	Notes on inclusion/exclusion
Any more comments	