

BMJ Open Poly-skilling and advanced practice roles in perioperative care: protocol for a realist synthesis of evidence

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ABSTRACT

Introduction An ageing population and a workforce crisis have triggered an ambitious UK strategy for sustained delivery of healthcare. In perioperative care (the management of patients from contemplation of surgery until full recovery), it is recognised that interventions are needed to place the workforce on a more sustainable footing through cross-functionality and skill-shifting, namely with advanced practice roles. However, despite some reports and reviews in the literature, it is unclear how skills development efforts may potentially support workforce transformation for an effective and resilient perioperative care workforce. Thus, drawing causal inferences for policy-making that is both evidence based and rooted in theory is challenging. A scoping review, reported within this protocol, confirmed that ‘poly-skilling’ and ‘advanced practice roles’ are critical to this workforce transformation, but the mechanisms through which interventions in this area may work are not understood. A synthesis of evidence is, therefore, proposed in this protocol, to understand what works for whom and under what circumstances, in relation to poly-skilling and advanced practice roles in workforce transformation for sustained healthcare delivery.

Methods and analysis This protocol sets out the plan to undertake a realist synthesis of the related literature, with theory elicitation (step 1), search for empirical evidence (step 2), selection and appraisal of evidence (step 3) and programme theory refinement (step 4). Exploratory reviews of the literature and key informants’ inputs will produce initial hypotheses as to what it is about interventions in poly-skilling and advanced practice roles that work and why. Data from the literature will then be collected based on relevance, rigour and richness. The iterative analysis and synthesis of these data will produce causal links between contexts, mechanisms and outcomes. The results will inform a realist evaluation, to be undertaken as part of doctoral research, to better understand the mechanisms that support workforce transformation through poly-skilling and advanced practice roles.

Ethics and dissemination As a review of previously published literature, the evidence synthesis proposed in this protocol does not require formal ethical approval. Recommended ethical considerations regarding the involvement of key informants, who are not study participants but a consultative group, are presented in this protocol. A formal ethics approval will be sought ahead of the later empirical stage of the research. The results of the realist synthesis proposed in this protocol will be fed

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The synthesis proposed in this protocol goes beyond identifying interventions to poly-skill and develop advanced clinical practice roles, to build an understanding of why, how and under what circumstances these interventions may work.
- ⇒ The review will benefit from key informant’s insight, to explore explanatory models and assumptions behind poly-skilling and skill-shifting interventions in workforce transformation.
- ⇒ The use of a sequential realist approach, including and progressing from the synthesis, may strengthen both the applicability and generalisability of the resultant refined programme theory(ies).
- ⇒ An important limitation of the synthesis is that it will depend on the level of detail in the reporting of contexts and mechanisms in the relevant literature, which may also be subject to publication bias towards reporting only the successful outcomes of interventions.

back to the local National Health Service organisation and Integrated Care Board and disseminated to the research community via presentations at conferences and a peer-reviewed journal article.

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INTRODUCTION

The latest figures on National Health Service (NHS) England’s performance pointed to around 6.33million individual patients waiting for treatment at the end of August 2024,¹ with the longest waits in surgery for hip and knee replacements and general surgeries such as gallbladder removals and hernia repairs.² It is recognised that surgical capacity needs to grow in a sustained fashion, and the long-awaited national plan to address the workforce crisis, published in June 2023, aligns with previous calls for increased staff flexibility and cross-functionality, upskilling of clinical teams and redistribution of tasks, including non-medical staff stepping into roles traditionally undertaken by doctors.^{3 4} In the specific context of perioperative care,

the NHS Long Term Workforce Plan recommends pragmatic action to develop the extended perioperative care team to meet demand and improve surgical productivity.⁵ More generally, it supports several routes to increase training into professions, and a focus on retaining and reforming. This clear direction of travel through workforce transformation includes projects focused on skills development, new roles and new ways of working.⁶ Interventions across these domains of workforce transformation tend to decouple some work from fixed roles and are generally termed ‘upskilling’, ‘multiskilling’ or raising the number of ‘polyvalent employees’.⁷ These, alongside the development of advanced practice roles for ‘task-shifting’, run across the majority of resources suggested by NHS England for bespoke solutions to workforce challenges,⁶ matching the prominence given to poly-skilling and advanced practice roles in the recent long-term NHS workforce plan.

SCOPING OF THE LITERATURE

A background search of the literature, undertaken to ‘map the territory’,⁸ identified poly-skilling and the development of advanced practice roles as groups of interventions strongly related to workforce transformation for sustainable service delivery. Subsequent range-finding searches of increased focus were conducted to identify the possible volume, scope and quality of existing literature on interventions to poly-skill and develop advanced practice roles, both in perioperative care and in unspecified contexts/settings.

Poly-skilling the workforce in perioperative care

The ambition to increase healthcare workers’ cross-functionality is not new. The NHS Modernisation Agency (2001–2007) established the core concepts of the ‘Knowledge and Skills Framework’ and of the ‘Skills Escalator’, to provide a basis for pay progression in the NHS and for further achievements in lifelong learning, respectively.^{9–10} The Skills Escalator was described as a tool to enable career development, by supporting the development of specialist interests or new skills.¹⁰ Critically, it did not focus singularly on skill-mix changes, which could be seen as a labour substitution strategy with potential for deskilling phenomena.¹¹ Instead, notions of ‘role redesign’ progressed to a ‘talent management’ agenda, supported by the NHS Leadership Academy around a decade later.¹²

In 2023, the new NHS Workforce plan again prioritised poly-skilling as an avenue to retain staff and to ‘grow the total number of senior clinical decision-makers and enable the delivery of better patient care’.⁵ This strategy document supports a focus on expanding enhanced practice (the attainment of profession-specific applied knowledge and skills, beyond ‘entry level’¹³) and in upskilling in a number of areas: digital, genomics, population and public health, research and education as well as training to shift care towards prevention and early intervention,

cross-skilling to support delivery of care and training for adoption of innovation.⁵

There is a wide range of recent literature on role enhancement, to ‘increase the depth of a job by extending the skills and responsibilities of an existing role to enable practice at the top of one’s license’.¹⁴ One of the topics recently linked to poly-skilling concerns the COVID-19 pandemic and staff deployability. There are reports of ‘all-hands-on-deck’ situations demanding rapid training of doctors and nurses,^{15–19} describing various local strategies at a time when swift dissemination of practices, ‘hacks’, clinical evidence and qualitative data on lived experience flourished.^{20–22} These descriptions include details on numbers trained, types of instruction, duration of training and original aims behind the training interventions but are understandably light on evaluation of results or on explaining how and why these efforts towards cross-functionality worked or did not work. Furthermore, during the burgeoning of publications during the pandemic,²³ ‘upskilling’ seems to have been the preferred term to refer to any training that was immediately required in the face of a specific illness and to increase numbers of workers able to undertake specific tasks.

Another commonly reported topic in the literature about upskilling the healthcare workforce in recent years is that it is triggered by demand, new and rising, as conveyed by the new NHS workforce plan. Rising demand relates to an ageing population, changing disease profiles and the workforce crisis, including the ‘great resignation’ in the aftermath of the pandemic and a decline in the numbers of medical trainees.^{24–26} Upskilling, in this context, seems sometimes fraught with difficulties faced by practitioners in delegating²⁷ and is hindered by a lack of standardisation and effective escalation tools,²⁸ as well as by the lack of recognition by professional regulators, with implications in professional accountability and liability.²⁹ Other reports focus on new demand in genomics, Artificial Intelligence (AI) and digital technology, where, to date, the number of upskilling interventions to evaluate is small.^{30–32}

Finally, a significant strand of literature on poly-skilling the workforce explores how these interventions energise structural empowerment, job enrichment and professional development and enhancement, which contribute to attracting and retaining the workforce while driving improvement.^{33–37} Here, results are found in recruitment data, intention to leave and self-reported measures of satisfaction, as well as in perceived impacts on participants and patient care.

A rapid scoping of the literature, therefore, reveals a huge variability in types of poly-skilling interventions, the contexts in which they take place, and the outcomes reported. Importantly, calls for evidence of tangible benefits to patients are being made to offset the potential perception of increased workload for those poly-skilling.³⁸ Moreover, a closer look may also be useful where poly-skilling may be unutilised or incommensurate with levels

of responsibility, arguably creating another side to the coin, one of deskilling.³⁹

Advanced practice roles in perioperative care

Another crucial tactic in securing a sustainable workforce is task-shifting with the promotion of advanced roles, as seen in the recent NHS workforce plan with the pledge to ensure that 'more than 6300 clinicians start advanced practice pathways each year by 2031/2032', which represents an expansion of training by 46%.⁵

In England, advanced practice began in the 1980s⁴⁰ and was defined in 2017 as follows:

'Advanced clinical practice is delivered by experienced, registered health and care practitioners. It is a level of practice characterised by a high degree of autonomy and complex decision-making. This is underpinned by a master's level award or equivalent that encompasses the four pillars of clinical practice, leadership and management, education and research, with demonstration of core capabilities and area-specific clinical competence.'⁴¹

A scoping review published in 2021⁴² identified 15 different advanced practice titles for nurses, as well as 13 in pharmacy, 13 in radiography, 17 in physiotherapy and 7 others (midwifery, audiology, healthcare scientist, paramedic, occupational therapy and that of the perioperative specialist practitioner⁴³). In 2023, a report commissioned by the UK's Nursing and Midwifery Council found that a single definition of advanced practice was lacking, as well as 'consistent outcomes, or standards of education or proficiency'.⁴⁴ Within the registered workforce, the more established advanced practice roles in perioperative care include those of surgical care practitioners, physician associates, anaesthesia associates (formerly known as physician assistants in anaesthesia) and advanced critical care practitioners.^{45–47}

A small number of reviews have mapped the territory of recent literature on advanced practice roles in general,^{42 48–52} or in specific settings such as primary care,^{43 53} intensive care,⁵⁴ long-term care⁵¹ or cardiac perioperative care.⁵⁵ Reviews have also gathered evidence on curriculum aspects⁵⁶ and regulation issues.⁴⁴ Fresh scoping searches of evidence and perspectives reveal attempts to measure the impact of advanced practice roles on health outcomes, services and practitioners, generally frustrated by lack of evidence to clearly substantiate claims of improvement. For example, a report on the global literature regarding advanced clinical practice in the context of primary care⁴³ concluded that evaluation of clinical effectiveness is masked by insufficient detail on the actual interventions (ie, on the actual level of practice or not being advanced) and that patients' perspectives, although overall positive, remain unexplained. As for impact on workforce, the same review points to diverging viewpoints from professional groups regarding the scope of advanced practitioners and a surprising lack of research on skill-mix issues.⁴³ As for impact on cost, the

literature points to data being absent and, where present, lacking generalisability,⁵² although it has been suggested that advanced practice roles lead to cost savings in both critical care and emergency services.⁵⁷

A section of recent literature on advanced practice roles also refers to the COVID-19 pandemic. An analysis of the limitations on time to train advanced clinical nurses (and the alternative use of online education, case scenarios and patient simulation) concluded that the long-term implications of this are unknown, and that the appropriateness of alternative education methods is closely linked to the specific demands of diverse advanced roles.⁵⁸ In the context of the pandemic in the USA, long-standing statutory limitations on the practice of advanced clinical practitioners were temporarily lifted, which led to positive effects without there being an uptick in discipline cases brought against advanced practitioners.⁵⁹ In England too, a report on their role during the pandemic points to successful transfer of advanced skills to respond to the care needs of the older population, while lack of knowledge about the role and 'friction' with physicians were seen as barriers to progress and consolidation.⁶⁰

An expansion of the analysis of advanced practice roles seems to be emerging in the recent literature, for example, regarding homeless care,⁶¹ where the flexible, problem-solving approach of advanced care practitioners is seen to facilitate the management of increased levels of patient and context complexity. More recent publications continue to explore the teaching and learning aspects of advanced clinical practice, for example, in knowledge acquisition and attitudes,⁶² in skills training,⁶³ in assessment,⁶⁴ or on the advantages of electronic clinical tracking systems to enhance clinical encounters and experiences.⁶⁵

In the context of critical care and emergency services, reviewers have found that the involvement of advanced practitioners offers comparable clinical outcomes to those of physicians, due to continuity of care, with emphasis on their capacity to lead multidisciplinary rounds, faster rendering of care and overall coordination capabilities.^{42 57} Nevertheless, evaluating the impact of specific care and staffing models for advanced practitioners has been judged to warrant more research.⁴²

Besides these characteristics and circumstances, taken as intrinsic to advanced practitioners because they are established and experienced team members, reviewers have identified other important factors in ensuring superior outcomes, namely in supportive organisational cultures with effective relations between managers and clinicians and with a willingness to innovate in workforce transformation.⁵⁷ Reviewers considered that, despite the many reports available in the literature, the financial impact, the 'value-added' aspect of advanced practice, and the impact on medical trainees' training and on team satisfaction also need further exploration.^{42 55}

Rationale for study

Having identified ambiguity and variation surrounding both poly-skilling and advanced practice roles but, nevertheless, finding indications that there is momentum, now and recurrently, to 'use them' as tools to put the workforce on a more sustainable footing, what remains to be clarified are the plausible mechanisms that support effective interventions in poly-skilling and advancing practice. Rather than determining whether these types of interventions work to affect provision of care and/or the actors involved (patients and practitioners themselves), it seems important to explain 'what' it is about poly-skilling staff and investing in advanced practice models that causes change (intended and unintended), 'why' it does so and 'how'. Insights about the interventions, the mechanisms they activate and the contexts in which they work can prove useful to develop and refine assumptions about interventions designed to poly-skill and/or for the development of advanced practice roles.

The study proposed in this protocol, therefore, intends to interrogate the literature to surface the mechanisms that potentially support workforce transformation through poly-skilling and advanced practice roles for an effective and resilient perioperative care workforce. A realist synthesis allows a theory-driven focus on explanations, rather than on judgements, about how complex interventions work.⁶⁶ Through a realist synthesis, it is hoped that relevant data on poly-skilling and advanced practice roles can be interpreted to build coherent arguments for a programme theory.⁶⁷ A programme theory will operationalise ideas about what works, for whom and under what circumstances, linking activities and outcomes.⁶⁸ Further defining realist research and realist synthesis is beyond the scope of this paper, but guidance is available elsewhere.^{69 70}

METHODS AND ANALYSIS

Realist approach

A realist approach was chosen as appropriate to the study given the complexity and multifaceted nature of programmes in upskilling and advanced practice roles.⁷¹ The realist synthesis described in this protocol is intended as the first stage of a sequential application of a realist approach, evolving from the causal insights unearthed by the synthesis to generate conceptual models which can, then, be empirically tested. This sequential realist approach (depicted in [figure 1](#)) is essential for a research project, taking place through a review and an empirical stage, which is concerned with identifying 'what works, for whom, in what circumstances and why?'.⁶⁹

In addition, realist methodology was chosen because input from key informants can contribute to the development of hypotheses in realist research.⁷² This incorporation of 'folk wisdom' of practitioners, characteristic of realist research,⁶⁹ means capitalising on the knowledge and assumptions of those (healthcare workers, educators, managers, strategic leads, etc) directly developing

and employing efforts to ensure sustainable care delivery, including through interventions for poly-skilling and advanced practice roles.

Realist research questions for evidence synthesis

The scoping review of the literature, focusing on poly-skilling and advanced practice roles, resulted in the formulation of the following four research questions:

1. What are the mechanisms used to implement poly-skilling and advanced practice in perioperative care?
2. What are the intended outcomes for poly-skilling and advanced practice roles?
3. What are the important contexts which determine whether the identified mechanisms produce their intended impact/outcome?
4. What are the strengths and weaknesses of existing interventions focusing on poly-skilling and/or developing advanced practice roles in perioperative care?

The rest of this article describes the protocol for the realist review, based on guidance available.^{66 73} Despite being presented linearly, the five steps described are iterative and overlapping in nature, with theory refinement taking place throughout the planned period of the study, from January to December 2025. In support of the protocol described, a Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P)⁵⁵ record will be completed and the synthesis will be reported in accordance with the RAMESES publication standards for realist synthesis.⁷⁰

Step 1: theory elicitation

Pawson and Tilley explain how realist research is driven by theory, in the form of hypothesis-making, on:

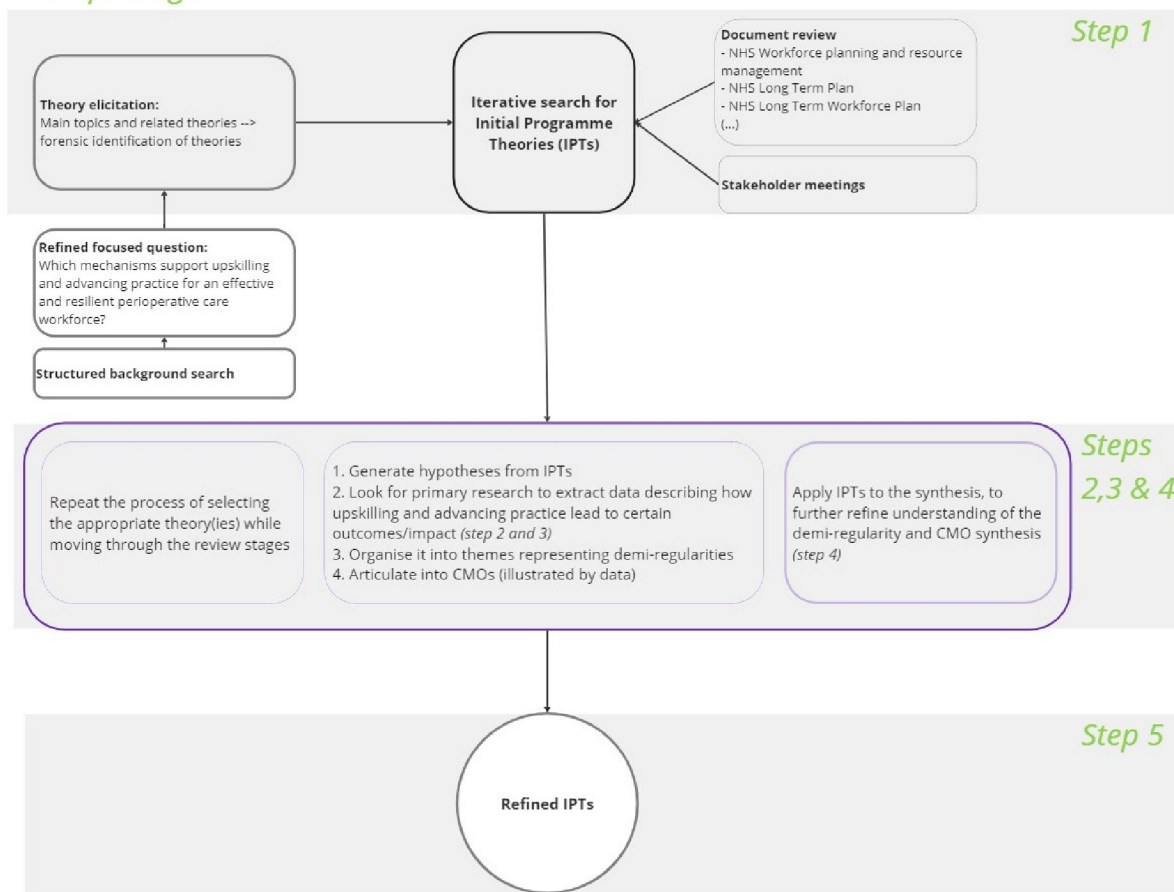
'what it is about the measure which might produce change, which individuals, subgroups and locations might benefit most readily from the programme, and which social and cultural resources are necessary to sustain the changes'.⁶⁹

Initial programme theories, also called 'initial rough programme theories',⁷⁴ therefore, look to explain what (and how) an intervention or programme is expected to do, using a realist logic of analysis, as captured in 'context+mechanism=outcome' (CMO) configurations.⁷⁵

For this realist synthesis, as commonly seen in realist research,⁶⁷ reviews of the literature will be informed by the ideas of 'key informants'⁶⁹ in aggregate acting as a consultative group. Their explanatory models, 'transcending mere description',⁷⁶ can assist the researchers in conducting a multiple-search strategy of a long list of 'candidate programme theories' and of mechanisms that explain what it is about programmes and interventions in poly-skilling and advanced practice roles that work and why. They will be asked to discuss 'what works?' in poly-skilling and advanced practice roles, 'why?', 'how?' and 'whom for?'.⁷⁷

Key informants will constitute a convenience sample of people with relevant roles within a large, multihospital

Work package 1



Work package 2

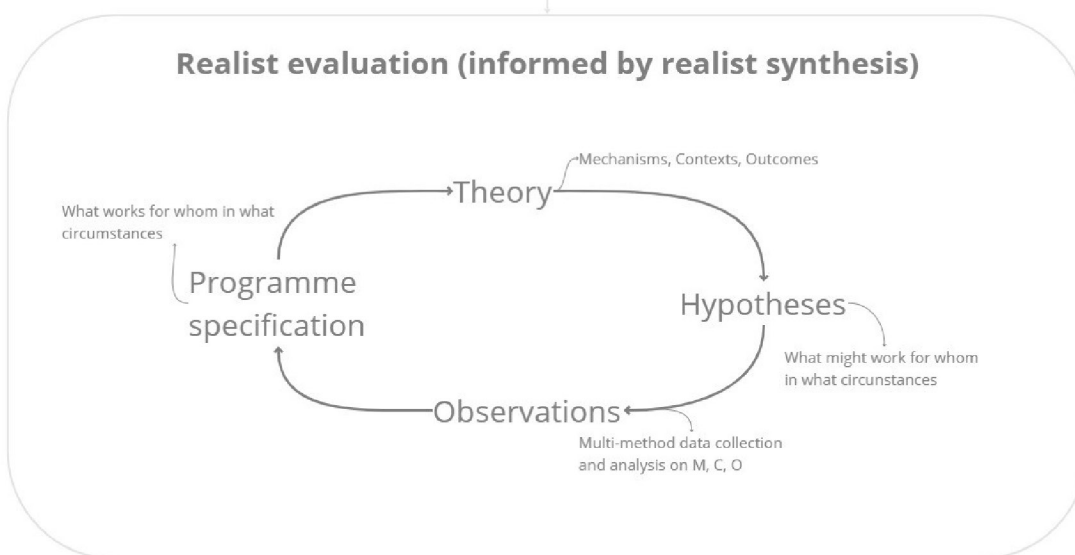


Figure 1 Map of sequential application of realist approach. The present protocol refers to ‘work package 1’. NHS, National Health Service.

perioperative setting in the NHS, with whom the researchers normally meet to discuss operationalisation of education and workforce transformation initiatives. Through a snowball sampling strategy, key informants will be asked to identify new potential informants.⁷⁷ Their

perspectives, based on experiences and assumptions, will be sought to inform the literature search, and so the recommended items for reporting the use of ‘advisory groups’ in realist reviews⁷⁸ will be adhered to. Key informants will not be ‘study participants’, and instead allow

Table 1 Singular and overlapping roles of key informants in the organisation

Role within organisation	Practitioners	Managers	Evaluators
Nursing and Allied Health Professions (NAHP) professionals			
NAHP leads ('matrons') across areas and sites	✓	✓	✓
Lead NAHP leads ('senior nurses')	✓	✓	
Educators (departmental and corporate level)	✓	✓	
Staff, from across areas and sites	✓		
Management			
Divisional and general managers from department across sites		✓	✓
Productivity			
Productivity practitioners			✓
Business partners			
Finance practitioners			✓
Workforce (human resources) practitioners			✓

for refinements in searching the literature for candidate theories and conceptual models, as seen in other realist studies.^{79 80} Their expertise will be drawn from their singular or overlapping roles as practitioners (ie, those particularly sensitised to the mechanisms (M) in operation in poly-skilling and advanced practice interventions), managers (those with experiential knowledge of outcomes (O) and circumstances (C) and ideas on what it is about these interventions that works (M)) and evaluators (team members directly making decisions about interventions and who have more or less sophisticated ideas of CMO configurations), as seen in [table 1](#).

As recommended for realist synthesis,⁷³ a multiple-search strategy to identify candidate programme theories will, therefore, be employed to review the literature, iteratively informed by discussions with key informants. This literature search strategy will include 'berrypicking', a flexible and iterative approach to the literature using non-linear iterative searches to allow gathering of information 'in bits and pieces instead of in one grand best retrieved set'.⁸¹ Literature searching will thus be similar to purposive sampling in qualitative research, both with emphasis on similarity/variation (criteria-based and snowballing), as well as through convenience and opportunistic collections.⁸² One technique for this iterative approach, capitalising on findings from searches and from discussions with informants, will be CLUSTER searching (ie, following up Citations, Lead authors, Unpublished materials, Google Scholar, Theories, Early examples and Related projects),⁸³ which may also prove useful in identifying empirical studies (step 2).

In this search for relevant candidate programme theories, it may still be challenging to search beyond those already known to the researcher, abstracted from key informants' explanatory models or beyond those directly (and seldomly) identified in evidence reports.⁸⁴ To mitigate for this risk, the Behaviour of interest; Health

context; Exclusions; Models or Theories tool will be used, to discover the prevalence of theory in the chosen topic and to follow up and consolidate initial leads discovered in this way with systematic searching procedures.⁸⁴

Step 2: search for empirical evidence

Searching for empirical evidence will allow for theory testing. It may stretch across a broad range of sources from different traditional disciplines, programmes and sectors.⁷⁰ Online supplemental table S1 provides an initial search strategy that relies on the use of keywords combined to forage for relevant contexts, interventions, mechanisms and outcomes from the literature. Importantly, this search strategy does not yet include keywords and subjects which can only be devised after theory elicitation (especially with regard to mechanisms) and will be updated throughout in light of emerging data. The goal of the search is to gather solid evidence about the main theories or assumptions behind the interventions of interest.⁸

A PRISMA flow chart⁸⁵ will document the review selection and decision process. Data items to be extracted are listed in [box 1](#).

Step 3: selection and appraisal of evidence

The judicious application of validated quality assessment tools is not germane to realist research methodology,^{69 75} as the contribution that a particular study may make is unlikely to reside in the entire study.⁸ Instead, realist methodology relies on an evaluation that respects 'the 3 Rs'⁸⁶ of relevance, rigour and richness. These criteria will be used during data extraction and analysis, to provide transparency and traceability to the review process. In addition, to aid the reporting of critical analysis of included studies, the Mixed Methods Appraisal Tool version 2018⁸⁷ will also be applied because, while it suitably does not produce a score, it allows for transparent recording of comments

Box 1 Content to be extracted from included sources and recorded in the data collection sheet

- ⇒ Author and date.
- ⇒ Title.
- ⇒ Type of publication.
- ⇒ Research design, theoretical framing (if applicable) and methods.
- ⇒ Upskilling or advancing practice intervention described (process/education undertaken).
- ⇒ Study objective (what intervention is intended to achieve).
- ⇒ Setting/country.
- ⇒ Sample characteristics (job roles, size, specialism).
- ⇒ Context (conditions, circumstances).
- ⇒ Mechanism(s) (which were triggered/activated as identified by researchers).
- ⇒ Impact (intended, unintended and/or subjective impact, broadly related to education evaluation^{90 91} components): (1) learner reaction, (2) learning or attitude change, (3) transfer of learning or behaviour and (4) results in organisational practice and patient benefit.
- ⇒ Outcome(s) (intended, unintended and/or subjective outcomes, in service delivery outputs, cost-effectiveness, patient satisfaction, relevant patient outcomes).
- ⇒ Implementation (content related to implementation and maintenance, such as strategy, adoption and/or uptake, challenges/barriers or facilitators).
- ⇒ Implicit or explicit theories of change, underpinning interventions and their implementation.
- ⇒ Strengths and weaknesses of intervention.

regarding the most important elements of rigour for different types of empirical research studies. The evaluation of relevance, rigour and richness of evidence will be further undergoing validation checks through discussion among the reviewers throughout.

Step 4: programme theory refinement

The stage of programme theory refinement will take place through analysis and synthesis of evidence. A programme theory explains what an intervention comprises and 'how it is expected to work, or the process by which the outcomes of interest are thought to come about (expressed as a narrative description or in a diagram)'.⁸⁸ Data synthesis will consist of a 'step back' from the aligned evidence⁷⁰ to produce a refined theory that can be used

in wider/other contexts. A quantitative synthesis will be conducted where data is amenable. A narrative synthesis determining themes (demiregularities) will then juxtapose overlapping CMOs against initial theories to further understand and reach the refined theory. Analysis will involve juxtaposition, reconciling, adjudication, consolidation and situating.⁷⁴

The resulting refined programme theory will (a) outline the contexts, populations, main mechanisms and outcomes (CMO configurations identified); (b) be led by particular explanations of how certain mechanisms activate certain outcomes in certain contexts and (c) draw on formal theory to produce a theoretical model of 'how'/'why' specific patterns of CMOs operate.

Patient and public involvement

Members of the public were not involved in the development of this protocol.

ETHICS AND DISSEMINATION

As a secondary research method to search and synthesise evidence from publicly accessible documents, the realist synthesis proposed in this protocol does not require formal ethical approval.

Key informants' perspectives, based on their experiences and assumptions, will be used to inform the literature search, and so the recommended items for reporting the use of 'advisory groups' in realist reviews⁷⁸ will be adhered to. Key informants are not research participants: they expand the researchers' understanding based on their own experience of the topic areas, helping to reduce potential bias.^{78 89} Table 2 presents the ethical considerations which have been made, as proposed by the Cochrane Collaboration's recent review of advisory groups in realist reviews.⁷⁸

Formal ethical approval from the University Ethics Committee will be sought for the subsequent empirical stage of the wider realist study (see figure 1, work package 2).

Regarding dissemination, this study will form part of a PhD thesis, and a digital post-viva electronic copy will be made available via UCL's Library Theses Repository

Table 2 Ethical considerations for deciding on and planning use of an advisory group in a realist review⁷⁸

How we plan on using key informants' inputs	To ensure the relevance of the research questions and of the key issues in practice. Abstraction from key informants' inputs will be used to help identify conceptual models or theories underpinning views on what works for whom and under what circumstances in poly-skilling and development/support of advanced practice roles.
Direct quotes from key informants'	No direct quotes from key informants' will be used.
Relevant policy of local ethics boards	The involvement of key informants in the realist synthesis does not require local university ethics board approval, as it does not involve collection and/or use of their data. Ethical approval by a research ethics committee under the Governance Framework for Health and Social Care is also not required, as key informants' are involved by virtue of their professional role and their potential contributions offer no material ethical issues (as confirmed with NHS Health Research Authority decision tool). ⁹²

(UCL Discovery). Publications will be drafted for potential publication, namely on effects of poly-skilling and advanced practice roles in perioperative care and the implications for practitioners, managers and educators (resulting from the realist synthesis); a realist evaluation protocol for a programme/intervention in upskilling and advancing practice in perioperative care (informed by the realist synthesis); and an analysis article on what works for whom and under what circumstances in upskilling and advancing practice in perioperative care (resulting from the final realist evaluation study).

The results from the realist synthesis and from the synthesis-informed realist evaluation study will also be fed back to the local NHS organisation and respective Integrated Care Board, to aid continuous improvement and to support initiatives in workforce education and resilience. A range of dissemination strategies will, therefore, be employed, such as via professional and NHS bodies, employer organisations, conferences and research papers.

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