HS&DR National evaluation teams: Detailed Research Plan

- **Project title:** Rose-NET – Manchester-Leeds Collaborative National Evaluation Team

Research team (ability to meet the call criteria)

Team expertise

Our core team comprises eight applicants, including four NIHR Senior Investigators (Bower, Dumville, Spilsbury, Sutton). All applicants have delivered large-scale health and care evaluations and have methodological expertise and evaluative experience spanning: evidence synthesis; surveys; observational and comparative methods; social and implementation science; impact and economic evaluation; qualitative and mixed methods; patient and public involvement and engagement (PPIE). We use participatory approaches and co-production to develop research that provides the insights that evidence users need.

We have gained this experience across several topics spanning health and social care (e.g. mental health, long-term conditions, end of life, frailty); service delivery and organisation (e.g. integration, digital health, primary care networks, social care, weekend hospital services); workforce (e.g. new roles in primary care, social prescribing, care homes); and financing and governance (e.g. incentives, resource allocation).

We are a highly experienced team used to leading large, well-established research groups, alongside undertaking various leadership roles across NIHR and wider infrastructure. A key strength is our flexibility to design and conduct evaluations across the spectrum of health and care organisation and delivery. We utilise our methodological expertise, wide networks with relevant stakeholders and our cohesive and collaborative approaches to deliver responsive evidence that can inform service organisation and delivery decisions.

An overview of our Rose-NET team members and their expertise is provided in Table 1.

Peter Bower and Rachel Meacock will jointly undertake the role of Chief Investigator, working in partnership, whilst bringing different specialist areas of methodological and subject expertise to the role. We have increased their FTE (Meacock to 20% and Bower to 15% to ensure they can allocate sufficient time to deliver the contract).

In addition to this core team, we will employ a programme manager (0.5 FTE) and 4.3 FTE researchers across 2 institutions, with a mix of methodological skills required for evaluation delivery. We have a shared focus on capacity building and can draw from a range of highly skilled researchers across our individual research groups (see later for full details of our wider networks). We will continue to support staff development, ensuring added value from the programme in creating the next generation of research leaders in health and care service and delivery evaluation. We will draw on the experience and processes of our institutions and NIHR infrastructure to ensure a focus on equality and diversity in development activities.

Abbreviations used in this application	
ARC Applied Research Collaboration	ICB Integrated Care Board
BRC Biomedical Research Centre	MLTC multiple long-term conditions
CNC Cross-NIHR Collaboration	NET National Evaluation Team
CRF Clinical Research Facility	PPIE patient/public involvement/engagement
EDI Equality, diversity and inclusion	PRU Policy Research Unit
FTE Full time equivalent	PSRC Patient Safety Research Collaboration
GM Greater Manchester	REVAL Rapid Service Evaluation Team
HDR Health Data Research	SSCR School for Social Care Research
HES Hospital Episode Statistics	SPCR School for Primary Care Research
HSDR Health Services Delivery Research	TIDIER template intervention description/replication
HTC HealthTech Research Centre	VCSE Voluntary Community and Social Enterprise

Table 1: Overview of team members and their expertise

Member	Expertise
Peter Bower Joint Principal Investigator	Health services researcher with expertise in the evaluation of service innovations, especially long-term conditions in primary care. Co-led the national evaluation of the diabetes prevention programme[1] and conducted national evaluations of Whole Systems Demonstrators[2] and Expert Patients Programme.[3] Leads the Evaluation theme, NIHR ARC GM and an honorary Fellow, Royal College of General Practitioners
Rachel Meacock Joint Principal Investigator Lead - Economic Evaluation	Health economist with expertise in the evaluation of financing, organisation and delivery of health and care. Has adapted the methods commonly used in cost-effectiveness analysis for application to large-scale service change.[4 5] Conducted evaluations of weekend hospital services, pay-for-performance, and diabetes,[6-10] including challenging settings (e.g., forensic settings, prisons). Leads current evaluation of community health services (NIHR134436). Joint leadership (economics) in NIHR ARCs
Bella Starling Lead - PPIE	Director of Vocal (not-for-profit PPIE group) and Honorary Professor of Inclusive Research. Led programmes of culture change related to PPIE, innovative approaches to inclusion and global programmes of engagement. PPIE Lead for the NIHR Manchester BRC, CRF and HRC
Karen Spilsbury Lead - qualitative research and social care	Registered nurse and applied health and care researcher, with expertise in qualitative methods and applied research on efficient use of the workforce to promote quality and enhance public experience.[11] Academic Director for NICHE (https://niche.leeds.ac.uk/about/), a care and research partnership. Executive Lead for Leeds in NIHR SSCR
Jo Dumville Lead - Evidence Synthesis	Applied health researcher with expertise in rapid evidence synthesis[12] and the use of multiple methodologies and methods.[13-15] Co-lead of NIHR REVAL rapid evaluation centre (https://sites.manchester.ac.uk/reval/) and deputy lead of the Evaluation theme in the NIHR ARC GM
Matt Sutton Lead - Impact Evaluation	Economist with expertise in impact (especially quasi-experimental) evaluation with linked data[6 16] and development of measures of inequalities in health and care. Co-produced evaluation with NHS England of Covid vaccines,[17] co-led national evaluation of the diabetes prevention programme,[18] leads Economics Sustainability in NIHR ARC GM, roles in two NIHR PRUs
Paul Wilson Lead-Implementation Science	Implementation scientist with expertise in rapid evidence synthesis,[12] evaluation and process evaluation.[19-21] Leads national evaluation of social prescribing in England,[22] the Implementation theme in NIHR ARC GM, and co-leads NIHR REVAL
Andy Clegg Clinical Lead	Academic geriatrician with expertise in frailty and MLTC, as well as complex interventions and service changes using mixed methods[23-25], track record of applied care homes research Co-Director of HDR-UK North, Theme Lead for frailty, NIHR ARC Yorkshire & Humber, and Co-Lead for the NIHR MLTC Cross NIHR Collaboration on Models of Care

Knowledge

Our understanding of service innovation

We adopt the definition of innovation as ‘a novel set of behaviours, routines, and ways of working that are discontinuous from previous practice/policy, directed at improving… outcomes…and …implemented by planned and coordinated actions’.[26] This broad interpretation includes workforce and service reconfiguration, as well as implementation and de-implementation. This is the same definition used by the NIHR Rapid Service Evaluation team (REVAL) at the University of Manchester.

Aligned with this definition, in-depth exploration of innovation formats, implementation, access, equity, and outcomes will be central to our evaluations. We will consider impacts at the system, service, and individual level. We are particularly interested in the wider impacts of innovations including access and equity, spillovers and unintended consequences. We have published conceptual and empirical work related to these important concepts.[27 28]

Familiarity with service issues and the tensions of national evaluations

Our methodological expertise is complemented by a wealth of practical experience in evaluating innovation in health and care. This experience, combined with our integration with many health and care service networks (see later section), give us an up-to-date understanding of the issues facing health and care services in England.

Service issues we recognise as often requiring consideration in evaluation include:

- The current provision of, and gaps or problems with, organisation and delivery;
- Insights into what is known about current service innovation;
- Variation in practice and the reasons for this;
- Workforce recruitment and retention issues;
- Service access and equity;
- Understanding innovation implementation and implications for wider adoption;
- Understanding how to stop existing practices as well as start new ones;
- Demonstration of impact and value for money;
- Valuing and integrating patient and public voices and lived experience.

Our experience exploring all the above issues and more, has equipped us with a good understanding of the tensions and sensitivities which may arise in conducting national evaluations, as well as a suite of strategies to manage these (see Table 2).

These strategies are underpinned by our ethos of collaborative working, which in turn relies on building good working relationships, mutual trust, recognising different perspectives, and clear and open communication.

Table 2: Approaches to address tensions when evaluating innovations in real time

Tensions and sensitivities	Strategies used to address
Challenges in defining the service change	Extensive scoping activities and close working with stakeholders to build a picture of the service changes planned, including theory of change workshops and logic model development
Challenges in defining the research questions	Developing a shared understanding of uncertainties, and what is required for decision making – all with a range of stakeholders
Generating evaluation findings within stakeholder timelines	Working with evidence users to map delivery and reporting timelines that are then factored into evaluation planning. Managing expectations around timelines required to deliver robust evidence
Conflicting views around what constitutes robust evidence	Explicit mapping between research questions, deliverables and decision-making needs. Discussions with stakeholders around robust methods, and common weaknesses (e.g. lack of comparators)
Delivery of negative findings	Use of a 'no surprises' rule so that stakeholders are the first to hear about results, and allowed to correct errors or misunderstandings whilst recognising this is an independent evaluation
Reluctance of stakeholders to engage in the evaluation	Relationship building to promote engagement and to understand reasons for any reluctance. Highlight the benefits of involvement and consider stakeholders' perspectives to come to agreements about how best to work together
Need for regular communication with all parties	Taking a proactive approach to engagement is a core feature, to build relationships and maximise the impact of emerging findings. Also ensures design is aligned with wider strategy and can take advantage of evaluation opportunities as they arise
Required flexibility to changing service and policy priorities	Making assumptions that changes are likely, build that into risk registers and develop plans to account for likely changes
Managing multiple evaluations at the same time	We are familiar with 'evaluation thickets' where innovations may precipitate multiple evaluations. We bring together different teams to ensure transparency, maximise synergies and minimise duplication
Implementation of pilot services are slower than anticipated	Service change takes time to implement, and we are experienced in using 'active hibernation' to pause elements of evaluation while delivery matures. We maintain close contact but reduce activity to free up capacity, as agreed with the funder
Valuing and integrating patient and public voice and expertise	Users of health services and innovations are key stakeholders. Designing relevant and inclusive methods for evaluations where users can usefully contribute needs their input from the outset

Previous experience

Table 3 details examples of our previous relevant evaluation experience mapped against the NIHR HSDR requirements.

NIHR requirement	**Exemplars of our track record**
Delivering high quality, national scale complex evaluations of large-scale service changes in health and social care	Our five-year programme of diabetes prevention research evaluated the delivery of a complex evidence-based behavioural change intervention using mixed methods across 8 workpackages, with multiple impacts including supporting ongoing commissioning, and changes to programme delivery including training and incentives.[1]
Demonstrating a range of qualitative and quantitative methods	Our care home research programme using mixed methods (NIHR15/144/29), quantified and explained - for the first time in the UK - how the care home workforce composition and organisation was linked to quality.[11] We demonstrated that simply employing more staff is unlikely to enhance care home quality in a cost-effective manner. This follow-on study (NIHR201429), using routine data provided by the largest UK provider of care homes (quantitative) and conducting 'sense making' discussions with sector stakeholders (qualitative), unpacked the concept of 'sufficient' staff - the match between planned and actual care hours for residents – and investigated the non-linear relationship between staffing and quality.
Commitment to equity issues, from data collection to engaging with seldom heard voices	We have explored equity issues across many evaluations, such as diabetes prevention,[29] vaccine uptake,[30] social prescribing[22] and changes in the primary care workforce,[31] as well in broader work in patient and PPIE research engagement[32 33]
Developing and nurturing high quality staff, with capacity to draw on wider range of research skills as needed	We build skills among our staff through formal fellowship schemes, national and local training, and innovative schemes such as embedding staff in arms-length bodies and integrated care boards for effective skill sharing – and hosting their staff in turn. Staff working in our NIHR infrastructure often work across multiple projects to strengthen skills and experience.
Accessing networks and contacts at a national level to draw on specialist content experts in a broad range of health and social care topics Engaging effectively with a range of stakeholders, including policy and service leads at local and national level, with experience of working together in scoping research approach and questions	Sutton worked in collaboration with NHS England to evaluate the effects of Covid-19 vaccination on infection and hospitalisation.[17] He co-produced the evaluation design with NHS England analysts, providing his expertise in quasi-experimental evaluation methods to ensure that the analyses were robust whilst utilising their in-house knowledge of, and access to, NHS data. Clegg has brought together networks and contacts across NHS England, Office for Health Improvement and Disparities (OHID), ICBs and Local Authorities through an NIHR ARC Research Implementation Advisory Group, to co-develop research questions and deliver projects, generating outputs aligned with policy and practice need.[23 24] Further details of networks are provided overleaf

Networks

Evidence users innovating in health and care services

Our local, regional and national leadership roles in NIHR and related infrastructure provides access to wide networks of evidence users and experts in health and care services. These NIHR roles span a rapid evaluation team (REVAL), Biomedical Research Centres (BRCs); Policy Research Units (PRUs), Applied Research Collaborations (ARCs), Patient Safety Research Collaborations (PSRCs), HealthTech Research Centre (HRCs), Schools for Primary Care and Social Care Research (SPCR/SSCR) as well as the Multimorbidity Cross-NIHR Collaboration (CNC) and Health Data Research UK (HDR-UK).

Our networks into those organising and delivering health and care includes policy makers in NHS England teams (in diverse areas such as health inequalities, diabetes, maternity care, public health, recovery support, urgent and emergency care, social prescribing, community health services and medicines optimisation). We also have links with analysts working in NHS England, including the Behavioural Change Unit. Our networks also extend to many regional NHS England teams. Through our evaluation work to-date we have also grown a comprehensive network into health systems, having conducted work with multiple Integrated Care Boards across England and devolved nations, such as evaluations investigating service delivery in areas including maternity care and urgent and emergency care.

In social care, Spilsbury has strong networks of evidence users through close engagement over many years with DHSC; Chief Nurse's Office; Skills for Care; NHS England; Directors and planners; Care England; National Care Forum; Leeds City Council; and Charities (My Home Life, Queen’s Nursing Institute). For public health, Clegg leads an NIHR ARC Research Implementation Advisory Group, which includes representation from NHS England, Integrated Care Boards, Local Authority, Office for Health Improvement and Disparities (OHID). He has further Local Authority links via an NIHR ARC post to develop research capacity in social care, co-located at Bradford & Metropolitan District Council.

Through her HS&DR project (NIHR134436), Meacock has developed a network of evidence users in community health services, presenting at NHS England webinars for providers and practitioners, and meeting with decision-makers in strategy, workforce, and community health improvement. Bower is on NHS Talking Therapies Expert Advisory Group and the related Digital Research Advisory Group supporting innovation in mental health services.

As an example of our networks in action - Wilson and Dumville are part of a team currently evaluating service transformation for care delivery to people with sickle cell. Within three months of starting this work, they developed productive working relationships with the NHS England team, the Steering Group and its advisory panel. Working with relevant VCSE organisations, they convened a lived experience advisory panel with an independent chair and developed productive relationships with the clinical and management staff in six sites across England. Other linked evaluations are being conducted on sickle cell service activity by teams within NHS England, a commissioning support unit and NIHR evidence synthesis centre. They co-ordinated regular meetings with all teams to ensure evaluations learn from each other, dovetail where possible and avoid duplication. Working with all stakeholders means an ability to shape the development of a minimum dataset for use in the evaluation.

Successful national service evaluation is also conditional on a range of wider collaborations that are crucial to success. This includes staff across the HRA and Trust R&D departments as well as human resource, finance, sponsorship, and contract teams in our organisations. So, whilst processes and approvals take time, we aim to minimise unnecessary delay.

Experts in various health service delivery and organisational disciplines

University of Manchester

Our proposed collaboration will facilitate access to a critical mass of experts in health and social care, and academic disciplines to support the delivery of diverse evaluations.
At Manchester, Bower leads the Centre for Primary Care and Health Services Research, which contains over 75 researchers from disciplines including academic primary care, medical sociology, implementation science, and health economics. The Centre has links to wider expertise in biostatistics, epidemiology and public health.

Dumville and Wilson are based within the Division of Nursing and Midwifery, ranked 2nd in the 2021 Research Excellence Framework (REF), providing further access to world-leading researchers in applied health and care across allied health professionals, dentistry, nursing and pharmacy. All work closely with colleagues based in the Division of Psychology and Mental Health, in disciplines including health psychology and behaviour change, and in the Faculty of Humanities in disciplines such as health and care management.

University of Leeds

Spilsbury and Clegg can draw on an equally strong multidisciplinary and methodological base at Leeds: trialists; co-design and PPIE expertise; implementation scientists; systematic reviewers, ethnographers, qualitative and mixed methods experts; statisticians; safety scientists; health economists; and data analysts/modellers. Spilsbury is Director of Research and Innovation in the School of Healthcare, leading research on Ageing Well and Quality and Safety, and hosting the NIHR SSCR (Phase IV). Clegg leads the Academic Unit for Ageing & Stroke Research (ASR), including 37 researchers spanning clinical academic geriatric medicine, primary care, palliative care, and pharmacy. The ASR is host Unit for the NIHR ARC Yorkshire & Humber frailty theme and University host for Health Data Research UK (HDR UK) North, bringing expertise in using large, complex, linked datasets and links to the wider HDR UK network.

Leeds hosts six university-wide research centres of relevance: NIHR SSCR@Leeds (Spilsbury is Executive Lead), NIHR Leeds BRC (Clegg is Co-I), Multi-disciplinary Cardiovascular Research Centre, Leeds Institute for Data Analytics, Leeds Cancer Research Centre and the Centre for HealthTech Innovation. Leeds hosts Nurturing Innovation in Care Home Excellence in Leeds (NICH-Leeds) and will be leading a NIHR Social Care Workforce Research Partnership (2025-2030). Leeds are partners for the Wolfson Centre for Applied Health Research, the NIHR Yorkshire and Humber PSRC, NIHR Yorkshire and Humber ARC and the Centre for Applied Education Research. REF 2021 (UoA3) found 95% of research was world-leading/internationally excellent, and environment 100% world-leading.

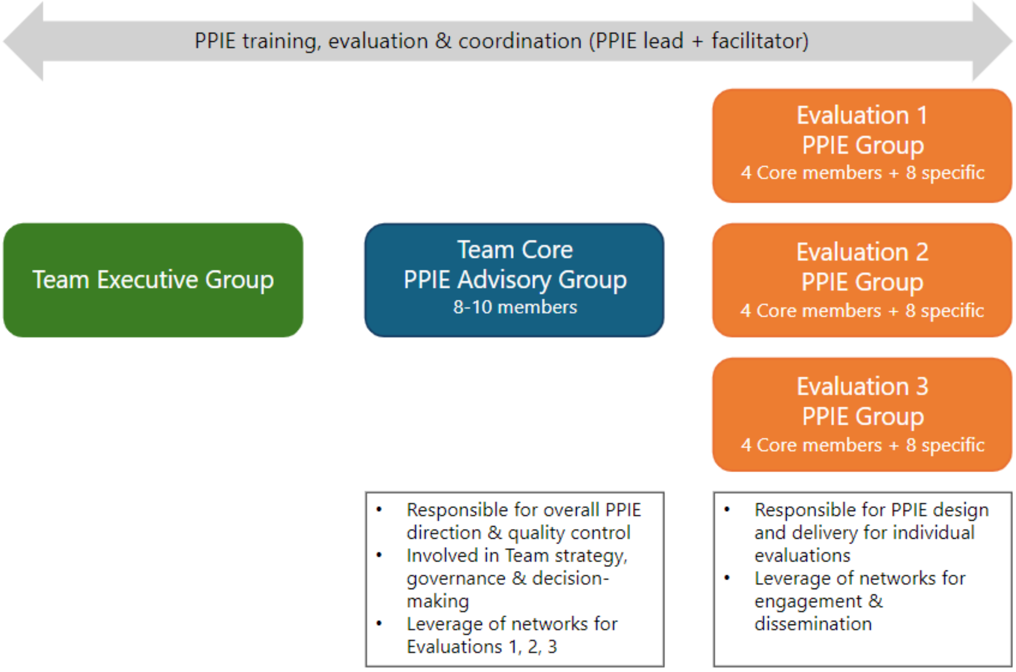
Beyond our own institutions, team members undertake key roles in various discipline networks. Meacock and Sutton are joint leads for Economics across the NIHR ARCs; Meacock is the joint elected head of the UK association for health economists; and Sutton is an economics member of the NIHR Methodology Incubator Steering Group. Wilson is co-editor of Implementation Science, the world's leading journal for implementation research, and Bower is on the board of Health Services Research UK. Sutton is connected with the Social Care Economics Network (SCENE).

As Co-Director for HDR UK North, Clegg's regional leadership role within HDR UK as the national institute for health data science includes strong links with the national HDR UK network. Clegg is also Co-Lead for the NIHR Cross-Network Collaboration on MLTC Models of Care workstream, bringing together the wider NIHR infrastructure to tackle major questions in MLTC research.

Patient and Public Involvement

Details of PPIE input into the bid, and its operation in our proposed Rose-NET are outlined in the specific section on the application form. We allocated around 5% of the budget to PPIE to ensure adequate resource to support effective involvement and co-production.[34]

The structure of the PPIE is shown in the Figure below, with the PPIE Advisory group feeding into the management of Rose-NET, having an overarching role in training and evaluation, and supporting the specific PPIE groups which will be mobilised for individual evaluations.



- Responsible for overall PPIE direction & quality control
- Involved in Team strategy, governance & decision-making
- Leverage of networks for Evaluations 1, 2, 3

- Responsible for PPIE design and delivery for individual evaluations
- Leverage of networks for engagement & dissemination

Starling will lead PPIE, working with the specific staff to be employed at Vocal. Starling has worked in PPIE for over 25 years and brings a breadth and depth of connections in this sector, with national reach. Most relevant to this bid, are:

- Connections established through co-development of the MRC's public partnerships strategy, with over 200 public partners from across the UK (and beyond);

- Embedding PPIE as part of Manchester Foundation Trust's Innovation Hub, which elaborates key principles for patient partnership in the adoption of innovation in England's largest NHS Trust, working with other Innovation Hubs across England;

- Co-leading the NHS England Research Engagement Network (REN) for Greater Manchester (with ARC-GM and the Caribbean and African Health Network). One of 42 in England, REN-GM aims to grow research engagement by working with local VCSE to engage underserved communities.

Vocal runs a number of Patient Advisory Networks ('Get Vocal on…') and specific PPIE groups (e.g. BRAG) with over 1600 public members. While many members are based in Greater Manchester, over half are located outside the region, showing national reach.

Research Design and Methods

We understand that topics and timescales for the evaluations will be decided by the Programme. Our general approach consists of four key steps.

Below, we outline our approach to the first two steps. Our approaches to issues of 'evaluation conduct' and 'dissemination' are detailed in other sections of this application form.

1. Question specification and prioritisation
2. Evaluation scoping and design
3. Evaluation conduct
4. Dissemination, outputs and anticipated impact

1. Question specification and prioritisation

We understand that the Programme will bring topics to the team and that stakeholders with direct responsibility for the service change will be closely involved in this process. As outlined in previous sections, we will work with these and wider stakeholders to refine research questions that can be feasibly answered within the timescales. This may require:

- Understanding the innovation of interest, including key components and interconnectivity with the wider health and care system;
- understanding the context into which the service change is being introduced along with relevant decision-making points and when these will occur;
- prioritising the potential for widening inequalities in access, experience or outcomes
- development of logic models to explore mechanisms and outcomes;
- decisions, and the trade-offs between timeliness and certainty of evidence required;
- exploration of linked evaluations that are also underway;
- understanding unintended consequences and spillover effects.[28]

The agreed research questions will balance feasibility, importance to evidence users, and timescales required for decision making. We will map our questions to priorities identified by others (NIHR, James Lind Alliance, DHSC Areas of Research Interest) to maximise value.

The 'core' PPIE Advisory Group, supplemented with patients, carers and service users relevant to the specific evaluation, will be involved in the question specification and prioritisation. This will include standing Advisory Group meetings and specific priority-setting workshops and consensus building approaches. Vocal brings experience of working with the James Lind Alliance to pilot priority setting methodologies that are community-led; and of working with researchers and public partners to jointly elaborate research questions in the BRC. Through Vocal, we are connected with a wide range of target organisations, staff groups, patient care groups, service users, and carers across disease groups and the spectrum of health and care services. We will draw upon these networks and build new ones during the evaluations, to ensure that our research addresses issues of relevance to the whole population, including groups historically not reached by research.

Outputs of this stage: research questions of importance to a variety of stakeholders, prioritised for feasibility, importance to stakeholders, and decision-making timelines.

2. Evaluation scoping and design

Scoping of evaluation research questions

Once an initial set of research questions have been prioritised, we will continue to collaborate closely with stakeholders to scope out and plan the evaluation. This will include the ‘core’ PPIE Advisory Group supplemented with specific expertise for each evaluation. We will draw on existing knowledge, wider policy information that will have also informed stage 1 and rapid evidence scoping and synthesis (where we have significant expertise[12 35]) where necessary. This approach will allow us to identify which questions can be answered by (or may need to be refined in accordance with) existing evidence, and which require primary research. It is at this stage we will also ensure that our plans complement other existing internal or external evaluation. We will explore whether further refinement of research questions from stage 1 is needed.

Scoping of relevant data sources

This scoping stage will also involve exploring existing data sources and comparators and their relevance and feasibility for addressing our research questions. This can include exploring the content of routinely collected data (such as Hospital Episode Statistics) using on-line summaries of available data fields, combined with our knowledge of other routine datasets, such as CPRD (for which we have ease of access at an organisation level) and other administrative and survey data (General Practice Patient Survey[36]), along with intervention-specific collections (such as NHS Talking Therapies[37]).

We will liaise with those leading service change of interest to establish what data access can be provided to the NET team. In previous evaluations this has involved us exploring ‘minimum datasets’ with policy teams, mapping these to research questions and shaping these datasets where possible to meet our requirements.

Scoping of relevant innovation and end evidence user needs

Scoping will also involve further consideration of the innovations being evaluated, including the geographical spread and local stakeholders involved. We will consider the size of the evaluation required, including whether a case study approach will be taken and how sampling will be done. A critical consideration is the potential for innovations to exacerbate inequalities in access, experience and outcomes.

This process will be structured with regular meetings with policy and delivery teams, PPIE Advisory Group, on-going engagement with people with lived experience, which may be via existing or bespoke lived experience groups or advisory panels. We will ensure clarity around what end evidence user requirements are and their expectations around the evidence being produced. The evaluation deliverables should map to these needs, whilst being feasible to deliver. It may be at this stage that the feasibility of a suitable evaluation is called into question, and we work with the funder and stakeholders to consider whether to proceed.

Evaluation design

Most evaluations will likely require a mix of methodologies and methods, and we will design appropriate and complementary quantitative and qualitative research plans to answer the prioritised research questions from stage 1. In the next section we summarise our experience and the breath of methodologies and method available to us.

Quantitative data collection and analyses:

For the quantitative elements, we will specify elements including the data sources to be used, the outcomes of interest, relevant covariates, approach to missing data, and analytical methods. The most appropriate method will depend upon the way in which the service change was implemented and the research questions, but will likely include the range of quasi-experimental methods we have used before, such as difference-in-differences,[38 39] interrupted time series,[27] regression discontinuity, and instrumental variables.[40] Our lead for impact evaluation (Sutton), is an international expert in this area, and has a wealth of experience successfully applying all of these methods to evaluate the impact of service changes.[41 42]

The design of the quantitative analyses will ensure that the scope of the evaluation is sufficiently wide to capture the full effects of the service change, including impacts on equity of access[29] and spillover effects[27] and that comparator groups are valid.

From past experience we know that additional complexities and opportunities will be revealed once our analysts access the data, particularly when using new data collections are being used for research for the first time. As well as supporting data collection ‘upstream’ to mitigate problems, we will be flexible, anticipating that our plans will need refining during stage 3 (undertaking the evaluation) as wider service and policy changes also occur. We will document any changes to ensure transparency.

Qualitative methods

For qualitative elements, we will employ a full range of designs and methods, including organisational case studies,[43] assessment of patient, carer and professional experience through interviews, focus groups and observations,[44 45] and using documentary sources, for example to identify staff uncertainties.[46]

We will use relevant theories to provide a framework through which to formulate our questions, guide qualitative data collection and to conduct our analysis. Using theory we will explore, understand and/ or explain findings, while promoting meaning for end users and transferability to other contexts, situations and/or populations. We will likely utilise a range of mixed methods designs, with varying relationships between qualitative and quantitative data in terms of primacy and order.[47]

Sampling and recruitment in an inclusive fashion to ensure diversity will be critical to effectively exploring inequalities in access, experience and outcomes. We outline our approach to this in the section ‘Equality, diversity, and inclusion for study participants’ below.

Outputs of this stage: evaluation plans detailing the methods to be used, with timelines for the production of interim and final results.

Table 4 provides an overview of the types of evaluative activity we anticipate undertaking, the relevant methodologies, and methods we have access to and linked examples of this.

Table 4 Overview of the types and examples of evaluative activity

Type of research question (with examples)	**Methodology and methods we could employ (with selected examples)**
Questions exploring provision and variation in provision e.g. • In what context was an innovation introduced? • What was current activity before the innovation	*Approaches:* Documentary analyses; qualitative interviews; focus groups. *Examples:* Scoping usability and accuracy of point of care texting in care homes.[48] Documentary analysis and interviews to map social prescribing or new models of integrated care for diabetes and disordered eating (https://sites.manchester.ac.uk/reval/current-evaluations/).
Questions about reasons for change(s) proposed e.g. • What does an innovation aim to achieve? • What is the rationale for intervention components?	*Approaches:* Document/survey analysis; interviews/focus groups; discrete choice; scoping review *Examples:* Surveys of managers to explore reasons for skill mix changes in primary care.[49] Discrete choice experiments with patients about preferences for innovations.[50] Surveys to identify the range (and method) of data collected by UK care homes.[51]
Questions around workforce, such as role boundaries, role substitution and skill mix, staff satisfaction and experience	*Approaches:* Interviews; analyses of workforce data; surveys; non-participatory observation *Examples:* Analysis of workforce changes through routine NHS data, surveys and case studies.[31] Case studies of the impact of assistant practitioner roles in the NHS.[52]
Questions about user, carer and staff experience and acceptability e.g. • What is the experience of receiving an innovation? • Do people find innovation acceptable?	*Approaches: Qualitative interviews/groups; surveys; analyses of routine satisfaction data.* *Examples:* Longitudinal interviews on adherence/experience in digital health.[53] Observing diabetes prevention programme in sites, mapping with TIDIER, and link to programme delivery data[45]
Questions about implementation e.g. • How has innovation been implemented in settings? • What are the barriers and facilitators?	*Approaches: Qualitative interviews and focus groups; surveys* Examples: Interviews to explore barriers to new medications in primary care[54] or management of leg ulcers.[55] Participatory approaches to enhance mouth care for care home residents.[56]
Questions about clinical or cost effectiveness e.g. • Is an innovation associated with positive outcomes? • Is it cost effective? • Are there spillover effects?	*Approaches: Quasi-experimental analyses of primary and secondary data; cost-effectiveness analyses including complex modelling with linked review activity* *Examples:* Modelling of impacts of 7 day services using HES[8], or cost effectiveness of diabetes prevention through a minimum data set.[57] Interrupted time series to explore incentive schemes[27]
Questions about impact on equity in access and outcomes of services for high-risk or defined groups of interest	*Approaches: Quantitative analyses of primary/secondary data; Qualitative interviews/focus groups.* Examples: Regression analyses of characteristics of those patient entering programmes compared with those in the wider community using published cohort data.[29]

Anticipated impacts

Whilst the impacts will depend on the evaluation, we will aim to produce evidence which will drive improvements in the organisation and provision of services, ultimately resulting in improved access and outcomes for patients.

We anticipate that the short- to medium-term impacts (within 5 years) will include:

- Improved commissioning and provision decisions which better match service provision to population needs, achieving better patient outcomes
- Evidence-based workforce planning
- Efficiency improvements in the use of limited resources across sectors

Theoretical/conceptual framework

We are advocates for theoretically informed evaluation and have extensive experience of using theory to plan and guide our evaluations. This approach enables us to offer more efficient and meaningful methods to generalise and predict outcomes, and the potential for successful replication in other settings. At this stage, we have not pre-specified one theoretical approach, as the nature of evaluations to be undertaken has yet to be determined and different approaches may be required. Nevertheless, there are several core theoretical approaches that run through our work.

First, we are focused on diffusion of innovations theory to explain how, why, and at what rate innovations spread through social systems.[26] Second, we will use our own INTENTS framework to structure any assessment of spillover effects and unintended consequences.[28]

Finally, we recognise that any service innovation needs to have due regard to reducing health inequalities, and our approach will be guided by the Health Disparities Framework[58] which recognises that the determinants of health inequalities are multi-level and any evaluation seeking to understand these needs to focus not only on the individual providers and recipients of services, but on the ways by which services are shaped by the wider health system in which they are delivered. The Health Disparities Framework will be complemented by our use of the lens of ‘candidacy’ which describes how access to, and utilisation of, health services is structurally, culturally, organisationally and professionally constructed.[59 60] Detailed exploration of equity in implementation, access and potential inequalities in outcomes will be critical in all our planned evaluations.

Co-production

Earlier, in describing our broad methods of evaluation, we have highlighted the importance of co-production. Although co-production in applied research often involves intervention design,[34] given the nature of the NET we expect most of the co-production to be around design of the evaluations, and in terms of knowledge mobilisation. Our collaboration with Vocal brings a wealth of experience in co-design which will support our ability to use the important principles.[61]

We will co-produce evaluations and dissemination plans (see below) by collaborating with all relevant stakeholders in the decision to implement research recommendations - patients and carers, clinicians, policy makers or leaders in the health and care system. Co-production will be facilitated by (i) our practice and policy networks, which offer extensive content expertise and frontline perspectives and (ii) our extensive community engagement partnerships, ensuring that all specification, scoping, evaluation, and mobilisation is informed by citizens.

Resourcing and project management

Programme resourcing and management

Bower and Meacock will jointly lead ROSE-NET taking overall responsibility for coordination, management, delivery and oversight. They have worked successfully together on a number of service evaluations, including integrated care for older people,[39] the national diabetes prevention programme,[62] and the impact of community health services. Spilsbury will lead the Leeds component. Management of ROSE-NET will be via a management team with Bower, Meacock, Spilsbury and the ROSE-NET project manager (0.5 FTE).

Researchers will be employed at Manchester (2.6 FTE), Leeds (1.3FTE), plus support for PPIE from Vocal (0.4 FTE). We plan to appoint a mix of quantitative and qualitative researchers with knowledge of mixed methods. The size and breadth of the research teams in our departments enables us to operate a flexible staffing model, responsive to the timelines required by the NIHR. We have used this flexible model, where staff work across two projects/evaluations, successfully in the past to deliver responsive policy work under our NIHR PRUs. This way of working also reduces risk and maximises developmental opportunities. Contracts will be managed by the University of Manchester contracts team.

The ROSE-NET management team will report to NIHR as funder. They will also report to the ROSE-NET PPIE Advisory Group (chaired by Starling) in terms of progress with PPIE and wider issues of diverse and inclusive research participation. In conjunction with NIHR, we will convene a wider National Evaluation Team Advisory Group (with membership including expert researchers, policy and service representatives, and patient and public contributors), to contribute to work planning and ensure that the contract is on schedule. There will be the option for advisory groups specific to each evaluation. REVAL rapid evaluation team will be a separate entity from Rose-NET, with separate activities directed by their respective commissions and separate resources as costed.

Project-level management

For each evaluation, an evaluation lead will be selected (likely Bower, Meacock or Spilsbury) based upon best fit of experience and expertise with the evaluation topic. This lead will take responsibility for overall management of that specific evaluation, including progress and risk management. A deputy for each evaluation will also be selected from the wider team, to ensure that workload and knowledge are shared to minimise risk.

The identified evaluation lead will undertake evaluation stage 1, question specification and prioritisation, in collaboration with the selected deputy and one of the researchers as a minimum. Core team members will also contribute where they have specific experience or networks of relevance to draw upon. Starling and the Vocal staff funded by the grant will lead the PPIE activities for stage 1. The wider core team will then meet to discuss the outcomes of these initial stakeholder engagement activities, and all core team members will input into the refinement of the research questions.

All core team members will contribute to stage 2 of the evaluation, scoping, designing the elements of the research related to their expertise. One of the quantitative researchers will undertake the data identification exercise, overseen by Sutton as impact evaluation lead. The results of this specification and scoping stage will determine the team to be involved in stage 3, undertaking the evaluation. The evaluation lead will meet with the researcher(s) involved every two weeks, and the wider evaluation team will meet on a monthly basis to discuss progress, emerging findings, and to contribute to the development of the work. The evaluation team will establish a timetable for regular feedback with the key stakeholders, based on the stakeholder' availability and preferences for updates and input.

Project/research timetable

We will work closely with HSDR to develop a workplan when the evaluations are known.

Our work in ARCs and REVAL programmes, as well as our larger funded projects, have given us good experience of working across multiple evaluations, and across multiple workpackages within a single large project. Our two institutions and their links with large, funded programmes of work supports working in an agile fashion and deploying resources flexibly to manage a complex work programme, taking advantages of natural ebbs and flows in work volume, as well as unplanned delays due to slow roll out or data barriers. We will ensure that funding of the staff time is charged to projects and programmes accurately.

We combine this flexibility with a large cohort of experienced researchers who can bring applied health and care research skills to a wide range of settings and subjects areas, drawing on wider networks to provide key contextual knowledge on issues such as ethics and participant recruitment. We are committed to research inclusion and to building diverse capacity in the research community.

Success criteria and barriers to proposed work

In the short term, a key criterion for success will be the final formation of key groups (such as the PPIE Advisory Group and the National Evaluation Team Advisory Group) and the recruitment of the core research staff (a proportion of whom may come from other parts of the local research infrastructure, as well as new recruits). Working with NIHR, we will set up the appropriate governance for ROSE-NET and develop key documents and processes (drawing on previous examples from REVAL where appropriate).

Our main process measure of success will be the start, delivery and completion of the three evaluations brought to us by NIHR according to the agreed timescales. We aspire for this to be high quality work, delivered by a genuinely inter-disciplinary research team, and frequent and equal contributions from all members of the team will be a process measure of our success. We will planned for our analyses to be informed by various stakeholders including PPIE, frontline practitioners and strategic decision-makers.

As for outcome measures of success, ultimately we are seeking to generate evidence to inform decisions about large-scale innovative service changes, and ensure use of this evidence in practice. We will be judged by that uptake by the key stakeholders involved in the service changes under evaluation.

Alongside, we will assess success by the wider reach of our dissemination activity to the public, practitioners, managers, commissioners, policy makers and academics. We plan for impact throughout and beyond the study, and will record this in a proactive, structured manner.

As academics, volume and quality of our academic outputs will be an important metric, but the primary aim of such outputs will be to give decision-makers confidence in the rigour of our research as a basis for the recommendations.

Earlier in Table 2 we outlined the sorts of barriers that we expect to encounter, based on our previous experience, and the sorts of strategies we have developed to manage and mitigate those risks. We will also look to build links with other NETs or relevant infrastructure to share learning and develop further strategies to manage new risks that may occur in relation to the evaluation of cutting edge innovations in health and care.

Dissemination, Outputs and Anticipated Impact

Effective dissemination and knowledge mobilisation relies on timely access to good quality and relevant evidence, combined with close collaboration and on-going relationships with researchers. Our dissemination and knowledge mobilisation strategy will be based around these two core elements.

With a minimum of three evaluations to be conducted over the lifetime of the programme, proactive engagement with key stakeholders, decision-makers and with members of patient, service user, carer and public groups will be necessary at all stages of the research process.

We intend to adopt an approach to dissemination and knowledge mobilisation based on our REVAL centre. This is an efficient use of NIHR resources and will help maximise the impact and use of findings as they emerge. We will facilitate close collaboration and on-going relationships with key stakeholders as each evaluation progresses. We will seek opportunities to align our work with decision making processes and will build in timely feedback loops, ensuring that we provide insights from the evaluation as they emerge.

For each evaluation, we will:

1. Identify, assess and prioritise stakeholders

Stakeholders will be categorised based on their levels of involvement in decision making, interest in, and influence on the topic. We will actively engage with those with high levels of involvement, interest and influence. Those with interest but lower levels of influence may require more general updates and signposting to summary findings.

2. Establish timelines for communication and engagement activities

From the outset, we will seek to establish a timeline that sets out when decisions relating to commissioning, continuation or wider spread of a given innovation are to be made. Doing so enables us to identify opportunities to provide insights as the work progresses and to develop a shared understanding about the nature and type of findings that will be delivered.

Establishing the timeline early on in the evaluation also enables key activities to be planned and coordinated efficiently. Activities will include PPIE advisory groups, feedback meetings with NHS stakeholders and policy makers, and wider dissemination.

3. Establish regular communication channels with key stakeholders

Our preference is to provide update and feedback loops via regular meetings that our stakeholders hold. For example, in our REVAL evaluation of the recovery support programme, we were able to get evaluation progress included as a standing item at the monthly Intensive Support Directors meeting, and to provide feedback to other quarterly quality and performance committees in NHS England and the DHSC.

Embedding knowledge mobilisation in existing channels of communication is our preferred model of working, although other models will be considered.

4. Define and refine modes of communication

Over the course of an evaluation, we may need to change the modes and regularity of communication. By maintaining a flexible approach, we will ensure we are using the best modes of communication with each stakeholder at all stages of an evaluation.

5. Develop clear and targeted messages

The clearer and more targeted key messages are, the more effectively they will be received and can be used to inform decision making processes. We are experienced at writing for a wide range of lay and professional audiences.

For each project, we will consider the language, detail and timing of all external messaging and, how to best tailor them to the variety groups connected to each evaluation.

We will work with our PPIE Advisory Group to maximise the utility of our dissemination and ensure that our outputs are as accessible for as wide an audience as possible.

Ethics

The applicant team collectively has a wealth of experience of applying for ethics in a range of contexts, including vulnerable populations (mental health, social care). We are experienced at working with service providers and patient contributors to explore ethical issues and design appropriate systems to reduce burden and provide a safe and inclusive research environment (including appropriate information governance).

A key tension may be balancing burden of research on staff and patients with ensuring our recruitment procedures are accessible and inclusive. We will draw upon published evidence[63-65] and insights from our PPIE contributors and subject experts. Given the relatively poor evidence base in this area, we will also adopt a flexible approach which is responsive to emerging data on the effectiveness of our recruitment processes, as well as insights from the new Research Delivery Network through their extensive work on these issues.

We are experienced in obtaining the ethics approval required for research activities whether this be via NHS REC or SCREC (HRA) approval for patient recruitment via the NHS or University level approval for service user recruitment from non-NHS or other care settings or much research involving NHS staff. We work closely with our organisational sponsors to streamline processes, and successfully utilise proportionate processes where appropriate.

We are efficient with linked governance approvals (also obtained via the HRA) and link with individual Trusts early in the process so that patient identification centre agreements or OIDs as appropriate can be set in motion as quickly as they can be. We have obtained successful approvals for a range of service user populations including pregnant women from disadvantaged areas, including asylum seekers and non-English speakers, people with eating disorders and people receiving health care in prisons.

Equality, diversity, and inclusion for study participants

As noted, considerations of potential inequalities in access, experience and outcomes require an inclusive approach to including diverse research participants. We will approach this issue at a number of levels.

Vocal have a track record of diversity in PPIE, with data indicating they are already working with a greater diversity (across ethnicity and age, in particular) than comparators, and already undertake online learning and guidance on inclusive public involvement for NIHR.[32 66] They will manage equality and diversity in PPIE across the centre. The core PPIE Advisory Group is drawn from a diversity of ethnicities, backgrounds and experiences. The process for recruiting additional members to the PPIE Advisory Group for each individual evaluation will similarly ensure a diversity of membership.

Vocal is known for creating inclusive PPIE spaces where people feel able to speak up and contribute. We stay up to date with all methods to ensure accessibility of PPIE activities, including close captioning, carer's allowance, and physical adjustments.

We are committed to equality and diversity in research participation. Analyses of routine data will include secondary analyses of impacts by protected characteristics where possible, where we have extensive experience.[29 67] We will be mindful in analysis and interpretation of issues in the recording of important characteristics in routine data sets.

We will draw on our work with the NIHR INCLUDE project to use data to inform our sampling and recruitment strategies to ensure that primary data collection seeks (at a minimum) proportions of key groups within protected characteristics in line with existing data, although some projects may require oversampling.[68 69] We will employ strategies based on our own work and the wider literature to support diverse recruitment.[64 70-72]

Within the constraints associated with the particular projects, we will also seek to ensure we include a range of geographical settings (including rural and coastal communities) and align our research to disease burden using the 'Research Targeting Tool' and other data where applicable.[73]

Where significant barriers to recruitment remain, we will work actively with our PPIE groups to minimise the impact (as well as drawing on the experience of other National Evaluation Teams). We will ensure that our study reports include clear, consistent reports of our success in achieving our diversity goals and what learning has resulted, and that we regularly report back to the PPIE Advisory Group and the National Evaluation Team Advisory Group on our success (or otherwise) of our efforts and learning that may have emerged.

Vocal (and our PPIE partners) will support our dissemination to ensure the widest possible impact, including among groups experiencing disadvantage. This may require innovative dissemination approaches that are more accessible to a diverse public audience.

Fully-described examples of national level service evaluations undertaken by our team

1. Evaluating the NHS Diabetes Prevention Programme: DIPLOMA research programme

Status: Complete (https://fundingawards.nihr.ac.uk/award/16/48/07).

Stakeholders: NHS England, Diabetes UK

Summary: This five-year programme evaluated the delivery of a complex evidence-based behavioural change intervention to patients at risk of developing diabetes. The work used mixed methods, including routine data and qualitative data collection. Eight work packages explored all aspects of the programme: access, acceptability, implementation, delivery and comparative clinical and cost-effectiveness.

Outputs: 35 peer reviewed publications, 3 reports to NHS England to support particular phases of commissioning, blogs, summaries, animations and videos for public and professional engagement.

Impacts:

(a) Supported establishment of a national Diabetes Prevention Week, as well as changes to performance reports and key performance indicators, and development of incentives

(b) informed a new Provider Framework specification, including involvement of DIPLOMA staff on commissioning panels;[74]

(c) supported 2022 NHSE recommissioning of the NHS DPP under the newest (so called Framework 3) specification until 2025;[62]

(d) demonstrated that digital delivery was non-inferior to face-to-face delivery,[75] supporting the decision to offer a choice of treatment from 2022.

Challenges, responses and lessons:

NHS DPP was an evolving intervention delivered over a significant period of time (2016-2023). To ensure relevance to policy need, from the outset we actively engaged with NHS England and key stakeholders at all stages of the research process. This not only ensured efficient use of NIHR resources, but also helped maximise the impact and use of findings as they emerged.

We were able to adapt and refine the focus of our research to take account of strategic decisions to ensure continued relevance. This included taking advantage of evaluation opportunities as they arose (such as the evaluation of incentives to general practices for patient identification and referral,[76] and the comparison of digital and non-digital delivery[75]). This proactive approach to engagement is now a core feature in all the other national and rapid evaluations we undertake.

Our reflections with our PPIE contributors highlighted tensions in their involvement in a nationally implemented NHS programme, including their primary role in terms of the research, rather than the design of the NHS-DPP service. We managed this through discussion and reflection, supported by our success in ensuring continuity of PPIE support in a long-term project.[77]

2. Building a policy and sector-relevant evidence-base of the relationships between care home staffing and quality: developing insights and using novel methodological approaches

Status: Complete (https://fundingawards.nihr.ac.uk/award/NIHR201429 a follow-on study to https://fundingawards.nihr.ac.uk/award/15/144/29)

Stakeholders: DHSC; NHS England; Senior operational managers (care homes)

Summary: Staffing is the largest cost in care homes and shapes quality. It is also a limited resource that needs to be deployed for maximum benefit. Our programme using mixed methods (NIHR15/144/29), quantified and explained - for the first time in the UK - how the care home workforce composition and organisation was linked to quality. We demonstrated that simply employing more staff is unlikely to enhance quality in a cost-effective manner. This follow-on study (NIHR201429), using quantitative data provided by the largest UK provider of care homes and qualitative 'sense making' discussions with sector stakeholders, unpacked the concept of 'sufficient' staff - the match between planned and actual care hours for residents – and the non-linear relationship between staffing and quality. Uniquely, we established the importance of skill mix, where care quality is likely to improve if registered nurses provide a quarter of required care. Increasing nurse staffing beyond this level will not result in further gains unless organisation of care facilitates better use of the extra resource.

Engagement: We engaged care home organisations and their staff, residents and their relatives, as well as commissioners, regulators and policy makers in early discussions about our plans. These discussions confirmed our research focus and plans to build the evidence base for practice and policy as a priority. Importantly, this shaped the study design to include stakeholder and relative consultation about how the Stage 1 results might be best mobilised.

Impact: (a) Articulates the specific role for registered nurses in care homes to benefit residents' care; (b) presents the nursing inputs required to promote quality and the threshold where increasing nursing input would not improve care quality if the organisation of care remains the same; (c) contributes new knowledge to inform ICB (and policy maker) strategic workforce planning for the sector; (d) highlights the structures and processes that promote quality for care home providers to maximise the potential of their staffing resource; (e) promotes measures that capture experiences of care and quality of life

Challenges, responses and lessons: Our programme used routine data from two large care home providers, which does not represent the mixed economy of care home provision. These routine data focus on outcomes captured through incident reporting systems. To address this, our research programme used mixed methods to both measure *and explain* the relationship between staffing and quality in this context. In addition, our participatory approach ensured stakeholder engagement throughout our research programme.

The pandemic significantly impacted our plans for stakeholder engagement. We were not able to organise ongoing meetings with our planned engagement groups - (i) residents and relatives, (ii) care home managers and staff, (iii) policy makers - due to pressures experienced by individuals at the time. However, we engaged these stakeholders and public representatives in our research advisory group, and we were able to host consultation groups online. We used different approaches to engage stakeholders online. Our consultation groups helped to contextualise the meaning of the results for the end users and these discussions ensured that a range of different perspectives fed into interpretation and our recommendations for practice, policy and research. 'Sense making' discussions *with* the sector are a feature of our national evaluations. Working with sector groups we are continuing to develop creative approaches to promote engagement, involvement and participation in research that represents diversity within the care home sector.