PROTOCOL

Innovation to enhance health in care homes: Rapid evidence synthesis

Summary of Research

The NHS Five Year Forward View identified a need for flexible, integrated models of service delivery to meet the changing demands of an ageing population. Six locations (vanguard sites) in England have been selected to lead on service transformation to enhance health in care homes. To underpin these and the future development of innovative models of care, critical summaries of the current research evidence base are needed. This proposal will focus exclusively on care homes, where the mixed economy of care poses particular challenges for service development. We will concentrate on four specific areas, identified as key enablers for the vanguard programme, where an understanding of the current evidence base will facilitate innovation in care home sites: technology, workforce, communication and engagement, and evaluation. The aim of the proposed work is to conduct a rapid synthesis of the evidence relating to the effectiveness, cost-effectiveness, implementation, delivery, evaluation and impact of new models of care on enhancing health in care homes across these four key areas. Our objectives are 1) to determine the potential uses, benefits and challenges of technology in care homes and for enhancing communication between care homes and partner organisations, 2) to identify flexible uses of the nursing and support workforce and innovative ways of working to benefit resident care; 3) to identify and critically describe the key characteristics and benefits of effective engagement between care homes, communities and other health related organisations, including barriers and facilitators to relationship initiation and maintenance; and 4) to summarise existing evidence on approaches to evaluation of new Published literature will be mapped to a bespoke framework and four linked rapid critical reviews of the available evidence undertaken, using systematic, transparent methods which follow well established principles. Systematic searches of health and social care related databases will be undertaken. In addition, citation searching, reference list checking, expert and stakeholder recommendations will identify additional and forthcoming evidence, including reports and guidelines. All comparative and descriptive studies meeting pre-defined criteria will be included in the review. We will use our analytical framework to summarize and map the evidence base. The findings will be analysed using a mixture of quantitative, narrative and content analysis dependent on the nature of the data. We will provide a concise overview of the evidence underpinning innovative health (and social) care in care homes, specifically highlighting the potential barriers and enablers, the pitfalls of implementation and better practice methods of evaluation. Dissemination of the findings will be tailored to stakeholders, to enable local commissioning to pursue effective and cost effective services.

Background

The Department of Health is implementing a 'vanguard programme' to take a lead on innovation and integration of services to meet the changing needs of the local populations. There are four categories of vanguard site, integrated primary and acute care systems; multispecialty community providers; urgent and emergency care systems; and care for older people living in care homes. Our proposed evidence synthesis aims to provide a theoretical and empirical underpinning for the innovation that is already underway in the six vanguard care home sites. It will also contribute to the evolution and refinement of new care models as they are developed, evaluated and disseminated across the NHS and social care.

The mixed economy in the care home sector poses unique challenges to the integration of services. Funding of care homes, resident care and in-reach services are a mixture of public and private. The majority of care homes are commercial bodies, who must work across organisational and disciplinary boundaries, and liaise with state funded health and social care services, independent professionals, social enterprises and charities.(1) Residents of care homes have increasingly complex needs for health care. Levels of multi-morbidity, frailty and disability are rising as the care home population ages.(2) Across the care home sector, the recruitment and retention of the nursing and support workforce and high staff turnover are ongoing challenges. Technology offers many potential benefits to care and communication, but availability and uptake are variable. Over recent years, a consensus has emerged that services for care home residents need to improve in a range of ways. These include better access to co-ordinated, multidisciplinary care, partnership working,(3) enhanced dignity and privacy, and staffing levels matched to the needs of residents.(3, 4) The vanguard programme is part of the policy response to these identified needs. It will develop and evaluate new models of care, with a renewed emphasis on prevention, active rehabilitation and health promotion in care homes. This is expected to enhance wellbeing whilst also reducing resource use.(5)

We propose to conduct a rapid synthesis of the evidence on enhancing health in care homes through the organisation, delivery and quality of services to care home residents. These six vanguard care home sites are developing locally appropriate services that have potential for national replicability, adaption and spread. To maximise the benefit to the wider NHS from the investment in this programme, it is important that innovation is followed by dissemination, and underpinned where possible by existing evidence. A review is required now to ensure that all wider changes are grounded in evidence-based good practice. Gaps in our knowledge also need to be identified for ongoing evaluation and research. Vanguard sites are being encouraged to learn from international experience. Our review will provide an objective, critical synthesis of relevant findings from other countries that will help vanguard sites and others to consider novel ways of working and radical change to enhance care.

Four key enablers for care home vanguards

The focus of our work will be on four inter-related issues; technology, workforce, communication and engagement, and evaluation. These are key enablers to care home vanguard success, identified in recent guidance for vanguard sites.(6) They are also expected to be enduring issues with relevance to other settings. However, we will work closely with the vanguard sites, and be flexible to modify or extend these topic areas, to ensure we produce findings that are of practical use to commissioners, providers and frontline staff.

Evaluation of vanguard interventions will assess the impact on health and wellbeing, care, quality and efficiency. Identifying the principles of effective evaluation in this setting will be crucial, including how to identify the active ingredients of new models of care and, specifically, which of these may be the influential contextual factors for promoting enhanced care. Our existing understanding of the health care and support needs of care home residents is limited by the absence of any comprehensive, easily accessible source of information on health, wellbeing or quality of life in care homes across England and Wales. This evidence synthesis will consider the source and types of data needed to evaluate the quality and impact of health and other service inputs to care homes. Such information will be invaluable to the vanguard sites as they implement the high level national strategy for evaluation. It will also help to define a minimum dataset required to monitor the health of care home residents.

Technology will be an increasing focus for innovation in care homes, reflecting the role that it plays in the wider world. The availability of technological advances will determine pace and nature of change and approaches to evaluation. The use of technology is at the heart of one of the six care home vanguards- Airedale has harnessed existing technology to create direct lines of communication between care homes and staff in hospitals; a model that has been replicated in other sites across England. We know that dissemination of innovations in this field is less likely to be by formal publication, and the published and grey literature will not be extensive. The value of the review will be in in identifying gaps in our knowledge and extending our understanding of how technology may enhance resident care, rather than the details of the technological development.

The workforce is crucial to the success of care homes. High staffing levels and job satisfaction are associated with a range of indicators of better quality care.(7-10) Conversely, high staff turnover is linked with poor outcomes for residents. The literature on training and ongoing professional development for the registered nurse workforce has recently been reviewed by two of the applicants.(11) The absence of a career path for care home nurses, low levels of confidence in their own skills and poor access to training were particular areas of concern. Our preliminary research for this application has identified four main themes in the literature; 1) leadership, 2) staff characteristics and quality of care (levels, retention rates), 3) staff

satisfaction and 4) preventing stress and burnout. These themes identified will be the main focus of our review.

Good **communication and engagement** are essential to the successful integration of services, and particularly important when care is delivered by many different provider organisations. Care homes are a unique setting. In England, most care homes sit outside of the NHS and statutory services, but work alongside a wide range of public and private service providers. Collaborations with health and social care professionals and organisations are believed to benefit care quality and promote person-centred care for care home residents.(12, 13) Good communication between care homes, hospice and acute services improves quality and resource use.(14, 15) Care homes have long seen the benefits of collaboration with their local communities, to enhance residents' quality of life, and break down some of the misconceptions and stigma surrounding care homes. Initiatives such as community tea parties, adopt a resident and communal gardening initiatives are perceived to be of benefit to quality of life, and boost a home's commercial success.(16, 17) However, few have been subject to rigorous evaluation. Care homes and care commissioners with limited time and resources will benefit from an evidence synthesis that draws out the principles of effective communication and engagement, and the approaches most likely to enhance resident health and wellbeing. Our review will provide this summary. This is a cross cutting issue, relevant to relationships with health services, social care, commercial companies and community groups.

Evaluation of the impact of services on resident, staff and system is essential, but it is challenging in this setting. Multiple organisations may contribute to the care received and we have few routine data on health care experiences or health outcomes for residents. The United States has a national minimum dataset on residents of Medicare or Medicaid certified care homes.(18, 19) In England, there are no similar accessible, aggregated outcome data to monitor residents' health and care. A high proportion of residents are removed from monitoring data produced by general practice for financial payments,(20) and residents are excluded from a majority of population surveys.(21) Social care-related quality of life is measured using ASCOT (Adult Social Care Outcomes Toolkit), and work is underway to develop a care home quality indicator based on ASCOT.(22)

Despite these challenges, there is an extensive literature on evaluation in care homes. A range of reviews have been published in specific areas, but there is no overarching synthesis of the current evidence to guide commissioners to an appropriate evaluation framework. Some authors have looked at the way in which care is organized and how this affects residents (e.g. Interdisciplinary interventions in care homes,(23) the impact of case management,(24) or optimal organization of homes for dementia care.(25)) But the majority of work investigates specific aspects of care, such as medication management and prescribing in care homes, (with a particular focus on reducing polypharmacy and minimizing the use of psychotropic drugs);(26-28) prevention of falls and exercise promotion/rehabilitation;(29, 30) or infection control and

oral care.(31, 32) Process and outcome measures in these areas have been taken as indicators of care quality in care homes, though it is noteworthy that more attention has been given to objective measures of physical status and functioning, rather than quality of life or resident identified priorities. An overarching synthesis of the current evidence will be useful to guide commissioners to an appropriate evaluation framework.

There is a clear need for an in-depth investigation of care home vanguards, and the particular challenges presented by this setting when developing innovative models of care across a range of providers. Our proposed work will focus down on the detail of developing and evaluating new models of care in and with the care home sector and we will investigate the aspects of vanguard work that are particular to, or potentially more challenging, in this sector.

Aims and objectives

The aim of the proposed work is to identify and synthesise evidence underpinning new models of care to enhance health in care homes. The focus will be in four key areas: technology, workforce, communication and engagement, and evaluation.

Our objectives are to:

- Identify the potential uses, benefits and challenges of **technology** in care homes and for enhancing communication between care homes and partner organisations. What is the impact of technology, who benefits and how?
- Identify flexible uses of the nursing and support **workforce,** and innovative ways of working and retaining staff to benefit resident care.
- Identify and critically describe the key characteristics and benefits of effective **communication and engagement** between care homes, communities and other health related organisations, including barriers and facilitators to initiation and maintenance of successful relationships.
- Summarise existing evidence on approaches to **evaluation** of new models of care in care homes, including assessment of the quality of care received by residents.

Methods

We propose to use rapid review methodology to synthesise the evidence in four areas of importance to care home vanguards. Rapid evidence assessment (REA) is a comprehensive, systematic and critical assessment of the scope and quality of available evidence. It is a particularly useful approach when there is a pressing need for the answer to a specific question, as it produces similar findings to formal systematic reviews in a much shorter time.(33) REAs follow the principles of systematic review methodology, with similar transparent, replicable steps, but the scope is more limited and the findings offer less depth. Compared to a full systematic review, the REA will usually involve searching a smaller number of databases over

fewer years, and impose more strict inclusion criteria. In this work, we will follow the REA methods developed by RAND Europe, defining our research question; developing a review protocol, defining inclusion and exclusion criteria, search terms, sources to be searched, study selection, data extraction, quality assessment, data synthesis and reporting.(34, 35)

Defining the scope of the review

The vanguard programme has identified eight key enablers to implementing change. Our proposal focuses on four of the key enablers that are particularly pertinent to the care home setting; workforce, technology, communication and engagement, and evaluation.

Identifying sources to be searched

We will work with an information specialist, to develop search strategies tailored to individual databases in health and social care, management and information technology. These will include MEDLINE, CINAHL, PsycInfo, ASSIA, SocialCare Online, The Cochrane Library (includes CDSR, DARE, CENTRAL, NHS EED), British Nursing Index, Health Business Elite. Grey literature of relevant interventions, evaluations or initiatives will be sought via Google, NHS Evidence, The Health Management Information Consortium, websites of organisations such as The Kings Fund, Nuffield Trust, Health Foundation, Social Care Institute for Excellence, NICE. We will search ACM Digital Library, IEEE Xplore and Archiv.org, where state-of-the-art work in human computer interaction and ubiquitous computing are most likely to be archived. In all the areas, electronic searching will be supplemented by informal methods of searching including referencing chaining and contact with experts.

Search strategy

The development of a detailed search strategy for each database is an important part of the proposed research and we will take a pragmatic, iterative approach to refining our search strategies.

Determining search terms

We have identified search terms relevant to our four questions, starting with Medical Subject Headings (MeSH) and key words. Pilot searches have been conducted in Medline (Ovid) to ensure that our searches are likely to capture relevant studies. The pilot search strategy will be extended and refined at the start of the study, and tailored to individual databases. In the technology review, in particular, the search terms will be very diverse and broad, as many of the terms used are poorly defined.

MeSH headings

Care home related: Nursing Homes; Homes for the Aged; Group Homes, Assisted Living Facilities; Residential Facilities. Long Term Care

Terms related to four topic areas: Health Planning; Health Care Reform; Health Resources; Delivery of Health Care, Integrated; Health Services Accessibility; Health Services Needs and Demands; Organization and administration; Needs Assessment; Public-Private Sector Partnerships; Nurse's Practice Patterns; Physician's Practice Patterns; Health Manpower; Health Personnel; Technology; Telemedicine; Cooperative Behavior; Community-Institutional Relations; Community-Based Participatory Research; Communication; Health Communication; Interdisciplinary Communication; Persuasive Communication; Communication Barriers.

MeSH terms will be translated into free text search terms, and additional terms included. E.g. Skilled Nursing Facilities (SNFs); care homes; residential homes; extra care housing; Veterans Administration; telecare; digital health; e-health; telehealth; remote monitoring; ambient assistive living; nurse practitioners (NP); clinical nurse specialists (CNS); advanced practice nurse (APN); advanced nursing practice (ANP); workforce.

Process of the review

Two researchers will independently screen titles and abstracts to identify studies relevant to the research question. Full text of potentially eligible articles will be retrieved and assessed by two researchers. Relevant systematic reviews will be interrogated and assessed in their entirety; therefore studies included in a systematic review will be assessed as a component of the review and not as individual studies. For systematic reviews and other studies identified for inclusion, data will be extracted using a bespoke form covering relevant domains. These are likely to include the name of first author, title, publication type and date; study design, country, data source, length of follow-up and sample size; participant characteristics; exposure and outcome measures used; methods of analysis, findings, conclusions and reported limitations. Data will be extracted by one researcher and checked by a second reviewer if time and resources allow.

Defining inclusion and exclusion criteria for studies

We will apply the following inclusion criteria to retrieved records.

1. English language publications - We will not seek to translate any articles.
2. Year of publication - We will conduct searches over 15 years, from 2000 – 2016.
3. Publication type or status - Material will not be excluded based on the publication type. Studies included within a systematic review that meets our inclusion criteria will be assessed within the context of the review, and not reviewed as an individual study. This will avoid duplication of effort and build on the existing review evidence base.
4. Countries - We will consider studies from high income countries. Eligible studies will report on principles and components of effective care models, so that research from a wide range of health systems will be relevant. This means that research will be drawn from countries where the organization of services is both similar and different to the UK.

5. Study design - All study designs will be included in initial searches and mapping, but we will deal with descriptive studies and articles without empirical data separately, using content analysis. This means that we will include commentaries, editorials and conference abstracts as well as systematic reviews and meta-analyses, randomised controlled trials (RCTs), controlled clinical trials, controlled before-and-after studies, interrupted time series and observational studies.

6. Methodological quality - Studies will not be excluded from the mapping exercise based on their methodological quality. Comparative studies will be subjected to quality assessment using a relevant framework to inform the end users of the review. Sub group analyses will be used the compare the outcomes from studies of different quality.

7. Our primary outcomes will be measures of health, functioning, quality of life and service utilisation. Secondary outcomes will vary across the four topic reviews, to encompass appropriate topic specific measures in communication and engagement, use of technology and workforce and evaluation.

Primary outcomes will include:

Health & functioning: health status, improvement or maintenance of functional ability, activities of daily living, falls, mortality;

Service use: reduction in, or more appropriate or cost effective service use e.g. unscheduled or potentially avoidable admissions to hospital, polypharmacy;

Quality of life: quality of life or wellbeing measures.

Secondary outcomes will include those specified in evaluation studies that are included in this review, in addition to the following topic specific measures:

Technology: Uptake of technology, impact on resident outcomes, use and costs of other services, care home resource use, benefits perceived and experienced by residents, care homes and partner organisations ;

Communication and engagement: Nature and duration of collaborations and impact on resident outcomes and resource use;

Workforce: Staff wellbeing and satisfaction, registered nurse and support worker recruitment and retention, and relation to resident outcomes.

Exclusion criteria

We will exclude research from low income countries. We will not consider research that investigates only specific clinical interventions, such as therapies for dementia.

Quality assessment

The quality of included comparative studies will be assessed using adapted published checklists appropriate to the study design of the project.(36-39) We will not critically appraise the descriptive studies. No studies will be excluded on the basis of quality, however, where data allows subgroup and sensitivity analyses will be performed to explore differences and test the stability of findings.

Information management processes

We will follow standard information management processes used in centres of excellence in systematic reviews.. The review will be conducted by two researchers employed as systematic reviewers in the evidence synthesis team at Newcastle University. They will be trained in information management and work closely with an experienced information specialist.

Organising and synthesising the literature

To organise and categorise the literature, we will use a framework based on a sample of relevant studies. The framework will be developed iteratively, but is expected to be based on study design, topic focus (technology, workforce, engagement, evaluation); level of intervention (individual resident, staff, care home, organisation and system), type of intervention (to include a range of different forms of structural and process measures e.g. surveillance, information systems.) A single study may contribute to multiple domains in this framework.

Data synthesis

In each of the four broad areas, a comprehensive overview of the scope of the evidence will be produced, exploring methodology and study design. Studies identified by our review will be mapped to the four key themes, allowing gaps in the evidence to be highlighted. Alongside a description of the scope of the identified existing evidence, the of the quality of the studies, will be summarised (defined according to the hierarchy of evidence). We will review the findings of our mapping exercise with the vanguard representatives, and work with them to refine our inclusion criteria for rapid systematic reviews. We will strive to encompass all proposed sub-topics, but prioritise those that are most closely aligned with the vanguard initiatives.

Rapid evidence syntheses will necessarily focus on more tightly specified questions. In these studies, quality appraisal of included systematic reviews and comparative studies will be undertaken. The method of syntheses will vary dependent on the nature of the studies/data; a mix of appropriate quantitative and qualitative methods will be used. Where appropriate for each of the four reviews (based on clinical and statistical heterogeneity and the necessary data being available) individual study results will be combined using appropriate meta-analytic methods. Where sufficient data are available, we will explore possible reasons for heterogeneity, such as differences in the populations being evaluated, the interventions, or the way in which the outcomes were assessed.

Plan of investigation and timetable

Four complementary rapid reviews (and associated mapping of the evidence base) will be completed over 12 months. The table below shows the stages of the review and key milestones.

Month of project	Activity	Milestone
1	Refine search strategies Run searches in different databases Develop & agree data extraction form	
2	Screen title and abstracts	
3	Retrieve articles for full text screening Start full text screening	Retrieval of all articles for full text screening
4	Complete full text screening Begin data extraction	Agreement on articles included in the review
5	Data extraction & quality assessment	
6	Data extraction & quality assessment	Complete data extraction
7	Data synthesis	
8	Data synthesis	
9	Data synthesis Begin to draft report and publications	Webinar or workshop with vanguard sites
10	Draft report for funder, publications	Data synthesis complete
11	Draft report for funder, publications	
12	Draft report for funder, publications ***Webinar or workshop for vanguard sites; workshops for 1) digital technology industry and others, 2) older adults in VOICENorth and beyond***	All publications and report to funder submitted
12-	Ongoing dissemination	

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