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Establishing and implementing best practice to reduce unplanned admissions in those aged 85+ through system change

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AIMS AND OBJECTIVES

Aims

To identify system characteristics associated with higher and lower increases in unplanned admission rates in those aged 85+; to develop recommendations based on best practice to inform providers and commissioners, and to investigate the challenges of starting to implement these recommendations.

Research questions

1.1 What system characteristics (including commissioning arrangements and pathways of care) are associated with higher and lower than average changes in unplanned admission rates in those aged 85+?

1.2 What are the antecedent, contextual and internal factors that influence these different characteristics for the management of care for those aged 85+?

1.3 What are the lessons for commissioning, system configuration and system change to reduce unplanned hospital admissions for those aged 85+ more widely across the NHS?

1.4 What are the practical challenges faced by providers and commissioners in starting to implement system change to reduce unplanned admissions in those age 85+?

BACKGROUND

This proposal is based on three premises; firstly that a major challenge for health and social care in reducing unplanned admissions is in those aged 85+, secondly that reducing unplanned admissions requires interventions at several inter-related points in a complex system, and thirdly that an understanding of the practical challenges in implementing policies to reduce admission is necessary for successful adoption.

The challenge of unplanned admissions in those aged 85 and over

The number of people aged 85 and over in the UK is projected to more than double in the next 25 years, (from 1.4M in 2009 to 3.5M in 2034) compared to a 12% growth in the overall population.[1] The proportion of emergency admissions contributed to by this age group has risen in the last five years from 9.5% to 11%,[2] and will continue to increase due to these demographic trends. Many, but not all, patients aged 85+ presenting to acute care have multiple comorbidities, polypharmacy, cognitive impairment and disability. Such patients are challenging to assess and manage, as the clinical presentation may be non-specific and difficult to interpret and relevant information may not be readily available. This leads to the high 'conversion rates' (the proportion of people attending acute care who are subsequently admitted to a bed)[3]. Once admitted to hospital, older people have longer stays, are more prone to hospital acquired complications, both physical and psychological (for example, delirium), and may experience more difficulty returning home or to their usual place of residence due to disruption of previously established care packages. [4]

Explanations for the rise of unplanned admissions in all age groups have been examined in detail in several reports.[2, 5, 6] Most of the rise has been in admissions

via the Emergency Department (ED), due to a combination of more attendances at ED and admission of people who may not be acutely unwell but nevertheless whose care needs cannot be rapidly met in their usual place of residence. The rise in short stay admissions and the lower proportion of admissions resulting in death support the suggestion that the threshold to admit has become lower.[2]
ED attendances are themselves affected by availability and accessibility of primary care services, especially out of hours provision,[7] and evidence from the US suggests that lower continuity of primary care increases admission rates. [8] In recent work conducted in Leicestershire currently submitted for publication, we have identified associations between admission rates and patient perceptions of access in primary care and tested the relationship between ED attendance, admission rates and GP/primary care profile. [9, 10] Several initiatives have been tested to stem the increase in acute admissions, with many focused on the oldest old. These include attempts to prevent a crisis requiring admission from developing (e.g. community matrons [11]), to reduce the proportion of attendances that result in admission by altering skill mix and procedures in ED,[12] to provide alternatives to acute admission (e.g. intermediate care [13]), to improve discharge procedures in hospital and so prevent readmission (e.g. multidisciplinary assessment) and to support early discharge.[14] Although there is some evidence, often from small scale RCTs, for the effectiveness of these as isolated interventions, [15] the design of evaluations has precluded examination of their effects on the whole system of care provision. The variable level of adoption of these initiatives across the UK allows us to conduct a 'natural experiment' of their impact. Unplanned admission rates for those aged 85+ show substantial variation across England and Wales [2] but no systematic work has been done to explore reasons to explain this or identify best practice. Without this evidence, strategic initiatives to control unplanned admission cannot be designed adequately or operated to best effect.
The recent report from Nuffield Trust urged clinicians, commissioners and managers to 'learn from trusts where emergency admissions have declined, as well as those where admissions have been far higher than the national average'. [2] We address this challenge by asking what are the characteristics of systems that have been effective in reducing admissions in those aged 85+, and how can effective systems be created?

The need for a systems level approach
As the Kings Fund report notes, 'in the real world, interventions will rarely be implemented in isolation. A combination of interventions intended to reduce admissions may be expected to have a 'cumulative' effect and, although each may have little effect individually, there may be greater benefit overall than the combined effects of single interventions'.[5] The need to understand how interventions interrelate and contribute to the total system of care is particularly important in providing care for the elderly. [16]
Such a systems approach is attentive to the interconnections and configurations between various elements, entities and processes that contribute to the performance, sustainability and capacity of an organisation or service. It suggests that complex social and organisational processes cannot easily be explained, or indeed changed, by focussing on single interventions, but rather it is the relationships between these that contributes to both success and failure.
Systems theory therefore provides a holistic approach to understand complex social and organisational processes, as exemplified by contemporary healthcare services that involve the coordination of multiple agencies, care process and organisations. It is based upon four underlying ideas. First, that 'the whole is greater than the sum of the parts' or that when different entities and processes interact there are emergent properties, including both intended and unintended consequences. Second, that

systems comprise entities or components with specialised functions and processes that often evolve in isolation and can be poorly aligned. Third, that specialised elements are often grouped and over time brought together into sub-units or organisations. Fourth, the challenge for systems thinking is the appropriate alignment and coordination of these elements and processes. A systems approach offers a middle-range perspective to understanding complex organisations and processes, such as initiatives to reduce admissions in the elderly.

Implementing system change

The literature offers a range of models and approaches for understanding and implementing organisational change within organisations, including the health service. [17]This often centres on modifying the goals or mission of a unit, the culture and values of staff, the structures and operations within which people work, or looking for innovation or new technology. Much of this research, however, is focussed at the organisational or unit level, with little attention to the introduction of change at the system level, as outlined above. In other words, understanding the processes of change requires attention and energy to change within the individual units or components that comprise the system together with the interconnections between them. This also means recognising that change management strategies that work within one unit, such as hospitals, might be very different from those needed in other units, such as GP consortia. Taking this 'systems perspective' therefore requires greater attention the wider institutional conditions within which care services are organised and delivered. This includes the institutional pillars, such as regulatory systems, normative conditions and cognitive-cultural influences, that have been shown to shape healthcare services and hinder strategic change.[18] Analysis of strategic change includes attention to several 'receptive conditions' for change:

1. Coherence of policy
2. Leaders of change
3. Environmental conditions and pressures
4. Organisational cultures
5. Managerial-clinical relations
6. Cooperative inter-organisational networks
7. Clarity of goals and strategy
8. Fit between the change 'agenda' and the local conditions

NEED

Expressed Need

This proposal addresses regulation and control of health systems (section 3.1 of SDO commissioning brief) by examining methods and mechanisms employed in performance monitoring, geographical assessments explaining trends in unplanned admissions and case studies of effective local systems regulation. One of the most striking findings in the reviews cited above is that trends in unplanned admission rates differ enormously across England. The focus of this proposal is to develop a systematic explanation for these differences, a research priority also identified by the Nuffield Trust. Specifically, it fulfils the SDO's commissioning brief to 'examine the organisational behaviours, systems and relationships across boundaries required to prevent and reduce unplanned hospital admissions'.

The proposed work also includes issues outlined in section 3.2 of the brief, including comparative analysis of commissioning arrangements. Results will provide 'evidence to support effective commissioning for the prevention and reduction of unplanned admissions' as called for by SDO. Furthermore, it will address the key issue of implementation of change in complex systems, also highlighted in the brief.

Service Need

Policy makers, commissioners and services leaders need to understand and develop more system-wide approaches to the management of both chronic and acute patient needs. As outlined above, the specific health needs of the over 85s presents a significant and growing demand for unplanned hospital care. As a part of this, research is needed to understand the system-wide configuration, including the connections and linkages between different care processes and providers, the balance of resources and the sharing of information, with the aim of ensuring patients are treated by the most appropriate clinical service and at the most appropriate time. Clearly hospitals have a significant role in the provision of care, but so too do other community and primary care providers who can often provide services in a more coordinated way, that is closer and more convenient to the patient and at similar or lower cost than hospital care. [13]This research will address the particular service needs of reducing unplanned hospital admissions for the over 85s, but will also generate wider lessons for other clinical and patient groups.

METHODS

Our conceptual framework is that emergency admissions are one outcome in a complex system which includes a range of inter-related services. Additionally, improvements will emerge not just from reconfiguration of services, but also from effective leadership and implementation. We define the system of interest as an acute hospital trust and its catchment area, including commissioners, GPs, intermediate care services, care homes, ambulance service and social care. The principal method proposed is a multiple explanatory case study.[19] This approach is designed not to be generalisable to a population but to develop and test theory. Multiple cases strengthen the results by replicating pattern-matching, thus increasing confidence in the robustness of the theory. We propose examining three cases at each extreme of changes in admission rates, a sample large enough to develop and test theory, while being small enough to be feasible. Other multiple case studies, including the national evaluation of intermediate care, to which several applicants contributed, have used a similar number of sites. [20]

Workstream 1: Identification of case study sites (2months).

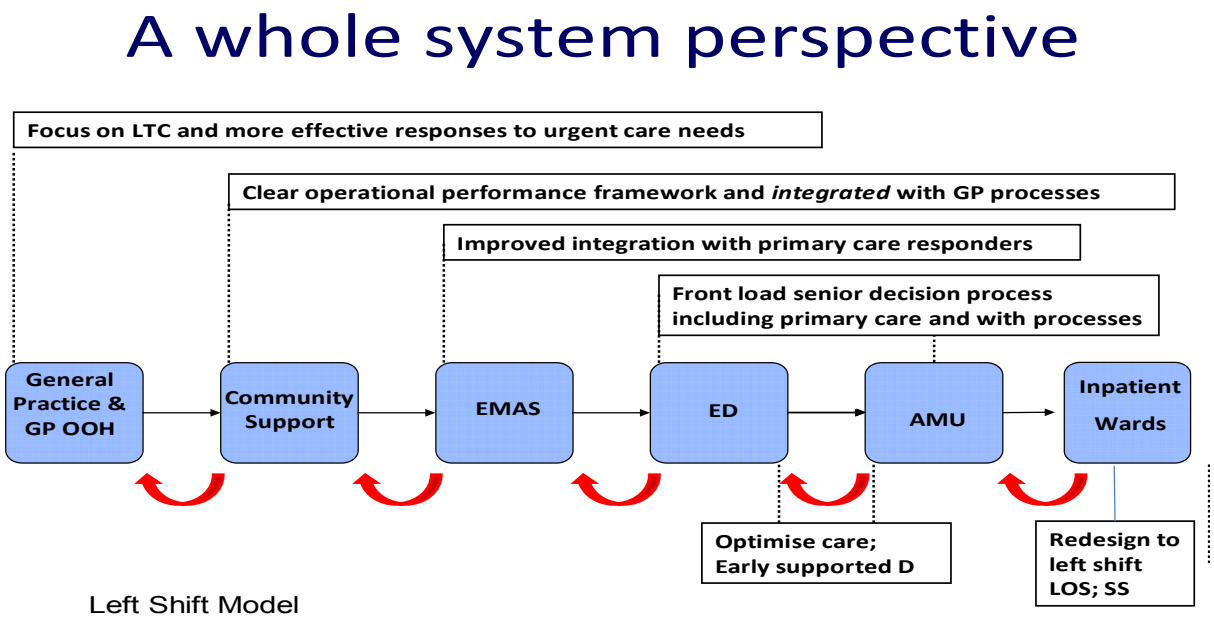
The starting point for selection of study sites will be the Nuffield Trust's ranking of local authorities in England by gradient of change in the rate of emergency admissions in the 85+ between 2004 and 2009. We will then examine data on 85+ admissions for the acute trust which is the main provider of emergency care for the selected local authorities. The Nuffield Trust has confirmed that we can have access to these unpublished data. Rate of change rather than absolute number or rate of admissions has been chosen as it accounts for demographic and other factors which contribute to variation in admissions. We will select six sites, three with the highest and three with the lowest increase in rates of admission for those aged 85+, after excluding any sites in which changes may be explained by extraneous factors such as trust mergers.

Potential sites identified are: Ealing, Brighton and Hove, Blackpool, Solihull, Newham, Central and Eastern Cheshire (highest increase) and Peterborough, Kingston, Walsall, City and Hackney, Greenwich (lowest increase). The trust and its associated commissioning groups and services will constitute a site. This is more stable and meaningful unit than a population defined by PCT, which in border areas may use a different acute trust, and which themselves will be replaced by GP commissioning groups during the course of the study.

We have not excluded sites serving different populations (eg rural, urban and metropolitan) for consideration, as there is no evidence that success or failure in reducing admissions is dependent on type of population.

Engagement of study sites will be facilitated by the involvement of several applicants with an intercollegiate group being established to develop recommendations for care of older people in emergency settings, on which Jay Banerjee represents the College of Emergency Medicine and Simon Conroy the British Geriatrics Society. They will liaise with colleagues at each selected site and, with other members of the study team, contribute to set up meetings. Each start up meeting will last one day and include AW, a secondary care clinician from the team, RBh or JW and KP or ER.

Workstream 2: In depth analysis of case study sites (10 months).
2.1 Mapping and analysis of quantitative data
At each site, the 'system' to be examined will be the main acute hospital trust in the locality, its major commissioning organisations and health and social services provision within its catchment area.
The pathways of care leading to admission of those aged 85+ will be mapped to the whole system perspective developed by JB (co-applicant) for the acute care board for Leicester, Leicestershire and Rutland and adopted by EMColl, as shown below. This describes a series of services starting with GP and out of hours care, through community support, ambulance services (EMAS), ED, acute medical admissions unit and inpatient wards, and points between them where evidence based interventions can be applied to reduce unnecessary admissions.



The flow of patients aged 85+ through the system will be mapped using detailed HES data from the last five years including admissions for ambulatory care sensitive conditions (ACSC). These are conditions for which admissions can potentially be prevented through primary care activity, including prevention, early diagnosis or the provision of alternative types of care. The NHS has identified 10 ACSCs, of which the most important in terms of cost are angina, cellulitis, congestive heart failure, chronic obstructive pulmonary disease and influenza/pneumonia.[21] We will also include emergency admissions for dementia, which has been suggested in a consensus exercise to be the condition for which admissions should be most preventable[22], although we recognise that this condition is under-recorded.
For each study site we will produce tables showing five year trends in the following aspects of care for those aged 85+:

1. Total admission rates, route of admission , length of stay and readmissions
2. Admission rates for specific ACSCs
3. Conversion rates from ED attendance to admission and, if possible, conversion rates from AMU to base wards
4. Rates of use of intermediate care (type of provision, duration of involvement) through record linkage. We recognise potential problems in identifying use of some intermediate care, especially facilities run by social services, and will explore this in the early stages of the project.

These time trends will be mapped against changes in system configuration, for example increased provision of intermediate care, involvement of geriatricians in ED.

2.2 Qualitative methods

As outlined in the introduction to methods, we will follow a multiple case study design [23]. As Baxter and Jack note 'this approach is valuable for health science research to develop theory, evaluate programmes and develop interventions because of its flexibility and rigour'. Our conceptual framework will be the whole system approach outlined earlier; we will use this to identify 'propositions' to explore and to guide interpretation and development of theory.

The operational performance of the system of care and its components will then be assessed and perspectives will be elicited on the relevant contextual, management and organisational factors. Following a set up meeting, two rounds of data collection will be conducted at each site, each lasting approximately three days. The first round will include those responsible for policy development relevant to unscheduled admissions of older people at commissioner and provider levels, and the second with those responsible for delivery of specific services used by older people, with informants identified from the first round of interviews.

We appreciate the logistical challenges of arranging these visits and will plan these well in advance, using pre-visit questionnaires and telephone interviews where face to face contact during a visit is not possible. Interviews will be complemented by documentary analysis as we recognise that some respondents may be relatively new in post, and other potential informants may have moved on. Documentary analysis also compensates for some limitations of interviews as a source of data, including selectivity, self congratulation and omissions of recall.

Each visit will include four members of the research team: both study co-ordinators (ER and KP), an expert in systems theory (RBh or JW) and a clinician (AW, SC, JB, SR or R Baker)

We will focus on key points in the system as outlined earlier:

1. Health and social care initiatives to identify and support those aged 85+ at most risk of admission
2. Arrangements for emergency and out of hours primary care, including ambulance policies
3. Provision of intermediate and integrated care provision including community based services and hospital outreach
4. ED configuration and staffing policies
5. Admission procedures in clinical directorates providing care for older people

In the first round of data collection, an understanding of the system's history and drivers will be developed through approximately 10 interviews with high level key informants, including commissioners and managers of health and social care with responsibility for those aged 85+, and clinicians and care providers with leadership

roles in primary care, ED, social care, and intermediate and secondary care services. Specifically, these interviews will explore known system-level issues such as commissioning, inter-agency working, communication and knowledge sharing, culture, power relationships, incentives, boundaries, and successes and failures in implementation. Through these interviews we will be able to document what changes have been attempted to reduce admissions in the 85+, the extent of adoption, their outcome, and reasons for success of failure. These interviews will be supported by analysis of key policy and operational documents and internal evaluations.

In the second round of data collection, we will examine specific components of the system as listed above using in depth interviews and focus groups with those involved in delivering care, to explore issues involved in translating policy directives to changes in the actual provision of care. These will include clinicians in ED and acute medical units (AMUs), managers of intermediate and integrated care provision and clinicians in primary care. Where possible we will use focus groups to bring together people of people from the same professional background (eg managers, doctors, nurses, social services staff), as this is more likely to encourage disclosure of sensitive inter-professional issues. These focus groups will include 6-10 participants and will be facilitated by two members of the research team, as chair and observer. We expect to conduct about 4 focus groups and a further ten individual interviews in this round.

Finally we will convene a focus group including representatives of carers and service users to capture their perspectives of the impact of initiatives to reduce admissions in those aged 85+. Participants will be selected who are able to present a user perspective on service changes focused on admissions in those aged 85+ and will be drawn from local PPI groups in primary and secondary care and charities such as Age UK.

Interviews and focus groups will be recorded and transcribed for analysis; text will be coded to categories derived from the data via an iterative process including inputs from all disciplines represented in the research team. Data collection and analysis will be concurrent, with early findings directing further enquiries within and between study sites. The coded data will be systematically sorted and charted to identify key issues. [24] Analysis will be guided by the conceptual framework and will include pattern matching, linking data to propositions, explanation building and cross case comparisons. Analysis will be facilitated by the use of *NVivo*, a software package designed for processing large amounts of qualitative data

2.3 Combining quantitative and qualitative data

Qualitative data will be analysed to develop within and between case explanations for the variability in the quantitative data, including total admission rates, admissions with ACSCs, conversion rates from ED and AMU and use of intermediate care. Specifically we will identify a hierarchical and thematic range of drivers and barriers to system level performance, especially the integration and management of care across diverse occupational, organisational and sectoral groups. This will consider, for example, the form of environmental and regulatory drivers, normative and cultural drivers and cognitive drivers. The analysis will enable us to explain why variations in the system-level configuration and management of care for those aged 85+ (and hence attendance at ED and admission). Techniques such as cross-case examination and within-case examination will be used to ensure external validity.

Workstream 3: Development of recommendations (2 months).

Results from WS2 will enable us to develop recommendations for system-level and organisational change to improve the commissioning and provision of care for those aged 85+, including inter-organisational working and communication, resources

management and sharing, care pathway design, shared protocols and procedures, inter-occupational/organisational/sector working practice, shared language and knowledge sharing and shared decision-making tools. Draft recommendations will be circulated to all participants from WS2 and comments invited. These will be followed by an expert panel, each including 10-12 participants representing a range of backgrounds and perspectives, drawn from study and implementation sites. These will be conducted using nominal group techniques to establish consensus.[25] Results will be used to further refine our recommendations. At the end of this phase we will have generated a proven, evidence-based tool kit of recommendations for strategies and interventions to enhance the system-wide configuration of to reduce unplanned admission in those aged 85+. These will be disseminated to NHS and academic audiences.

Workstream 4: Learning from the implementation of recommendations (8months).

This will be based in the East Midlands, in which the research team is based and which, according to the Nuffield Trust report, had the highest concentration of trusts (n=7) with emergency admissions at above average levels. This is therefore an ideal place to explore how recommendations to reduce admissions in those aged 85+ can start to be implemented. Working on emergency admissions is already a priority for the East Midlands Collaborative (EMColl) for health services management research, members of which are co-applicants. EMColl is a partnership between Leicester and Nottingham University Hospitals and Loughborough, Nottingham and Leicester Universities for health services management research and has established links all acute and primary care trusts in the region.

In collaboration with EMColl, two implementation sites will be confirmed at the start of the project. We will select one large teaching trust (University Hospitals of Leicester [UHL] NHS Trust or Nottingham University Hospitals NHS Trust, and one district general hospital trust (eg Kettering or Lincoln). The chair of EMColl, Malcolm Lowe Laurie, chief executive of UHL, is fully supportive of the project and has agreed to join the steering group.

In preparation for WS4, we will collect baseline quantitative data at each implementation site, mirroring the data collected at study sites in WS2. Work will be conducted with stakeholders at each implementation site to identify their own priority areas for admission reduction in those aged 85+, ensuring that services are prepared to respond to the project's recommendations. An additional research assistant with a background in operations management will be employed for 9 months to analyse current systems relevant to unplanned admissions in the elderly, using a systems approach and to describe and understand the process of beginning implementation. Given the limited time available, our focus will be on process evaluation, using Grol's framework for quality improvement. [26, 27]Evaluation of process provides an estimate of the potential level of change, and an assessment of whether the intervention needs adjustment. Data collection includes on-site reporting, self-reports and documentary analysis. During the implementation stage, members of the study team will work with representatives at each site, including commissioners, ED clinicians, GPs and social care managers, to develop and start to implement the best practice recommendations for change, and to identify practical barriers to implementation. With assistance from the RA, we will convene a quality improvement collaborative (QIC) at each site, including commissioners and providers. QICs comprise multi-disciplinary teams from different healthcare organisations working together for several months to work in a structured way to improve their provision of care. Strengths of this approach are its ability to produce accelerated change, the efficient use of experts and peers, and the exchange of best practice to facilitate and guide improvement. [28] The primary output from each QIC will be a business plan

for system change to reduce unplanned admissions in those aged 85+, signed off by commissioners and providers.
On completion of the implementation phase we will produce a report detailing the extent of adoption of recommendations, identifying factors that encouraged and hampered progress, drawing on observations and documentary analysis of minutes from the quality improvement collaborative and the world cafe event.

CONTRIBUTION TO COLLECTIVE RESEARCH EFFORT

The research team includes experienced researchers from a range of relevant backgrounds and clinicians with responsibility for planning and delivery of services. It has strong links with senior and operational NHS management, as demonstrated by ongoing work with the East Midlands Collaborative. The proposal has an embedded implementation phase, so that final recommendations will be based not only on empirical work conducted in study sites, but also their application in practice. The project will be supported by a steering group including the chief executive of a major NHS Trust who is also chair of EMColl and will also include GP commissioners, external academics and PPI representatives.
The principal output will be a tried and tested recommendations to guide commissioners and providers on strategies to reduce unplanned admissions in those aged 85+, as well as methods of implementation. This will be widely disseminated to GP commissioners and chief executives of acute Trusts in England, in both summary and detailed versions.
As well as a detailed final report to SDO, interim reports will be produced at six monthly intervals. Findings will also be disseminated at NHS and academic conferences, and published in academic and health service management journals. Specifically, it will contribute to knowledge on the management and co-ordination of care pathways and processes across multiple service providers with the aim of supporting system-wide service improvements. These lessons will be disseminated at a specialist one-day symposium for up to 50 policy-makers and service leaders, as well as SDO conference and network events. These findings will also be disseminated in journals and outlets, such as *Journal of Health Services Research and Policy*, *Journal of Emergency Medicine*, and *British Medical Journal.* The research will also contribute to knowledge on the management of change across organisational systems and institutions through it examination of the working arrangements and linkages between different care agencies and sectors. These findings will be disseminated through highly-rated international journals such as *Social Science and Medicine*, *Journal of Public Administration, Research and Theory*, and *Organizational Studies*.
During the dissemination phase, we will work closely with SDO so that our findings can be presented in ways that complement findings from other strands of work on the same topic.

PLAN OF INVESTIGATION AND TIMETABLE

Pre award	Months 1-2	Months 3-12	Months 12-13	Months 14-22	Months 23-24

Examination of routine data to identify potential sites	Selection of 6 sites, ethics and RG approval (WS1)	Field work in study sites, analysis of case studies, (WS2)	Drafting and validation of recommendations (WS3)	Write up and dissemination of WS1-3 (months 14-17)	Write up of WS4 and completion of final report and papers. Dissemination event
		Preparatory work at 2 implementation sites (preparation for WS4)		Learning from implementation (WS4)	

APPROVAL BY ETHICS COMMITTEES

Ethics approval will be sought as soon as funding is confirmed, and will be in place before the start date of the project. Research Governance will be applied for as soon as study sites are confirmed.

PROJECT MANAGEMENT

The project will be managed at three levels. The core project team (CPT) will comprise Andrew Wilson (chief investigator, 0.1wte), Kay Phelps and Emma Regen (study coordinators, both 0.6wte year 1, 0.4wte year 2) and the RA based in Loughborough for months 14-22 of the project. AW will have overall responsibility for project coordination and delivery. This will include responsibility for selection and liaison with study and implementation sites, financial accountability and production of reports. The CPT will meet every two weeks to ensure progress according to milestones, and to deal with operational issues.

The project management group (PMG), comprising all applicants will meet every two months. Members of the PMG will make specific contributions at different stages of the project as outlined below. Additionally the project steering group (PSG), which will elect an independent chair, will meet every six months and include all members of the PMG.

Contribution of team members to each stage or the research are outlined below.

Workstream 1: Identification of case study sites

John Bankart will lead on analyses of HES and other routine data to profile the twelve potential study sites. He will be assisted by a 0.4 wte data officer, employed for the first 12 months of the project. All PMG members will be involved in the final selection of six sites.

The study will be introduced to these sites by AW, Jay Banerjee and Simon Conroy, utilising existing links with the intercollegiate group referred to earlier, and supported by a letter to the chief executive from the chair of the PSG. This team will conduct a set up meeting at each site to explain the purpose of the study to local stakeholders, and convene a small coordinating group to support the project through the data collection period.

Workstream 2: In depth analysis of case study sites

All members of PMG will contribute to finalising data collection instruments and schedules for qualitative and qualitative data. Quantitative data collection at each site will be managed by JB, supported by the data officer. The coordinating group at each site will advise on access to routine data and local contacts to assist collection. Visit to study sites will include ER and KP, RanB or JW and a clinical member of the research team. Qualitative data collection at each site will be led by KP and ER, in collaboration with JW and RanB. This group will also lead on analysis of qualitative data and the synthesis of qualitative and quantitative data.

Workstream 3: Development of recommendations

Recommendations will be drafted by all members of the PMG. This will include contributions from primary care (AW) emergency medicine (JB) geriatric medicine (SC) commissioning (Stephen Rodgers) guideline development (Richard Baker) and organisational change (JW, RanB). All these will contribute to the expert panels at the end of WS3. Draft guidelines will be presented to and discussed with members of the PSG.

Workstream 4: Learning from the implementation of recommendations

Implementations sites will be identified early in the project and endorsed by the PSG. Members of the study tea will visit each site as soon as it has been identified and establish a small working group to take the project forward. Collection of baseline quantitative data will be led by JB, with support from an RA employed from month 14, who will contribute to mapping of systems, supervised by RanB. The development of quality improvement collaborative at each site will be led by JW, with additional input from SR and Richard B. JW will also lead on analysis of results from the implementation phase.

Proposed steering group

Suzanne Hinchliffe (Chief Operating Officer, University Hospitals of Leicester (proposed chair)
Malcolm Lowe-Laurie (EMCOLL, CE of acute trust)
Professor David Williams (Healthcare Engineering, Loughborough University)
2 representatives of commissioners (PCT, GP consortia)
Representative of social care for the elderly
2 external academics with track record in topic area
2 representatives from the PPI consultative group (see below)

SERVICE USER/PUBLIC INVOLVEMENT

Although this project will not include collection of data from individual patients, we recognise that the topic is one in which the views of the public and patients are central. For example initiatives may be successful in reducing unplanned admissions, but at the cost of patient choice and satisfaction, and increased strain on carers. For this reason we will establish a PPI consultative group with the task of providing user perspectives on the whole system of services to reduce un-necessary admissions of those aged 85+. Two members of the consultative group will sit on the on the project steering group.

The consultative group will include PPI representation from the ‘frailty group’ in Leicester. This is a wide ranging group representing clinicians (medical, nursing and allied health professions), patients and carers (including local Age UK group) and managers spanning primary and secondary care. The primary purpose of the group is to advise the local Darzi acute care board on operational issues, but it also provides a robust setting in which research proposals can be reviewed. We will seek one patient and one carer representative from this group to join the consultative group.

Two PPI representatives will be sought from the Leicester older people’s forum, which meets every six weeks to discuss service provision for the over 50s, chaired by Leicester City Council's cabinet member for adults and social care. Additional input will be sought from the University Hospitals of Leicester patient forum (1 representative) and from organisations representing BME groups (Mr Kartar Sandhu, who was instrumental in setting up the BBC Asian network, has agreed to join).

We therefore anticipate that the PPI consultative group will comprise 8 individuals. Members of the core project team will attend the consultative group, which will meet every six months.

We will ask these representatives to comment on and contribute to study design, particularly the topic guides for interviews and focus groups at study sites, the

interpretation of findings and the production of accessible and useful dissemination products.

EXPERTISE AND JUSTIFICATION OF SUPPORT REQUESTED

The team includes recognised leaders in health services research, organisational sociology, and operational management. It also includes academic clinicians from geriatrics, emergency medicine, primary care, and public health. In addition to the contributions listed below, we will employ a 0.4 wte data officer for months 1-12 and full time post doctoral research assistant for months 14-22. The project will be supported by a 0.5wte administrator.

Andrew Wilson (0.1) is an experienced health services researcher with a long standing interest in intermediate care. He led the only UK trial of an admission avoidance admission avoidance scheme, developed and validated a patient satisfaction questionnaire for intermediate care and has contributed to several systematic reviews on the topic. He is also clinical lead for the Primary Care Research Network, East Midland and South Yorkshire.

Kay Phelps (0.5) and Emma Regen (0.5) have a substantial track record in managing and delivering large-scale national evaluations of services and policies at the interface of primary/secondary and social care for older people. Examples include The National Evaluation of Intermediate Care (2001-2004) which was commissioned by the SDO and The National Evaluation of the use of Health Act Flexibilities for Older People commissioned by the Department of Health's Modernising Adult Social Care (MASC) Programme (2004-2007). Both of these studies employed the use of comparative case-studies (combining qualitative and quantitative methods) to evaluate the impact of service developments and to identify barriers and facilitators in the implementation process.

Justin Waring (0.05) (organisational sociology, Nottingham University Business School & EMColl) Justin's work makes connections between organisational and medical sociology in the context of ongoing healthcare reforms. He has expertise in the area of patient safety, service redesign and workforce reconfiguration. He is currently leading EMColl research in the management of hospital admissions. He has particular expertise in qualitative, ethnographic and mixed-methods research, including in-depth network mapping of knowledge sharing across care processes and has developed and applied the heuristic categories of knowledge, culture and organisation to understand the barriers to collaborative, system-wide working.

Ran Bhamra (0.05) (Operations Management, Loughborough University) Ran's career background bridges both industry and academia. His industrial experience is very broad - both in terms of the functional positions that he has occupied and in the diversity of industry sectors spanned within UK and international organisations. Ran's expertise encompases production engineering and management, project management, leading change, 'lean' initiatives and also consultancy. Academic interests focus on strategic operations improvement and also the concept of organisational resilience. Empirical research methods expertise: qualitative research methods, specifically - grounded theory, multiple case study and content analysis. In addition to contributing to the co-supervision and front line research implementation, the collaboration with Loughborough will provide an engineering and systems perspective to the project.

John Bankart (0.025) (Statistics). John is a medical statistician, working with NIHR CLAHRC for LNR. He is experienced in working with large datasets, including HES, and has developed a model to identify primary care characteristics that are associated with admission rates.

Richard Baker (0.025) (HSR, CLAHRC, EMColl) is a senior NIHR investigator with an international reputation in primary care service design and quality improvement, including guideline development. He is Director of NIHR CLAHRC for LNR, enabling

translation of findings into practice and partnership work with local NHS Trusts. He is involved in on-going studies of associations between primary care characteristics and admission and emergency department attendance rates.
Jay Banerjee (0.025) (Emergency Medicine, EMColl).Consultant in Emergency Medicine in Leicester and Acute Care Lead for Leicester, Leicestershire and Rutland) is involved in on-going local studies related to acute care, multi-centre studies on clinical effectiveness, service design and delivery, implementation projects with LNR CLAHRC and educational research to deliver evidence based medicine and improve clinical effectiveness. He is currently working with clinical committees at regional and national level including several academic Medical Royal Colleges.
Simon Conroy (0.025) (HSR, geriatrics) Simon is a Senior Lecturer and geriatrician in Leicester. His interest is in the acute care of frail older people, in particular trying to bridge the apparent gap between primary and secondary care. His research interests all focus on frail older people, ranging from definitions and epidemiology, through to develop novel services and interventions; current work includes a programme grant with Nottingham on the acute care of frail older people. He is currently Head of Service for Geriatric Medicine in Leicester. Nationally he is the honorary secretary of the British Geriatrics Society.
Stephen Rogers (0.025) is a PCT commissioner with a clinical background in primary care. He is interested in practical approaches to delivering change and has published on behavioural change strategies and improvement approaches. He was the grant holder for a portfolio of case studies evaluating process and outcome in five London healthcare communities implementing evidence into practice and currently combines research interests and a service role.
Data Officer (0.4 wte months 1-12). Duties will include: constructing a database over 5 years for 8 sites (6 study, 2 implementation) for 85+ unplanned hospital admissions, combining data from different sources (HES and stand alone intermediate care databases) and including subsets for ambulatory care sensitive conditions, plotting admissions against changes in service provision at each site. Some of these data could be used to uniquely identify individual so will require data encryption
PDRA (months 14-22). Duties will include: Establishing/identifying performance measures at implementation sites, facilitating the creation of QIC (quality improvement collaborative), guiding participants implementation plan and expectations, facilitating and monitoring the participation of individuals and groups during the implementation, ensuring that key project information and results are being recorded in consistent and appropriate way, providing feedback to participants, QIC group and project management group regarding implementation progress, assisting in the dissemination of the project outcomes.
Administrator (0.5) Duties will include general clerical services, maintenance of study databases, phone messaging, correspondence, communication and production of documents for study sites, ethics and RG approval, servicing meetings of the core project team, the project management group, the steering group and the consultative group, arranging travel and accommodation at site visits, appointments with key informants, liaison with local PPI groups, arrangements for focus groups, liaison with transcription services, management of study documents and assistance with production of reports.

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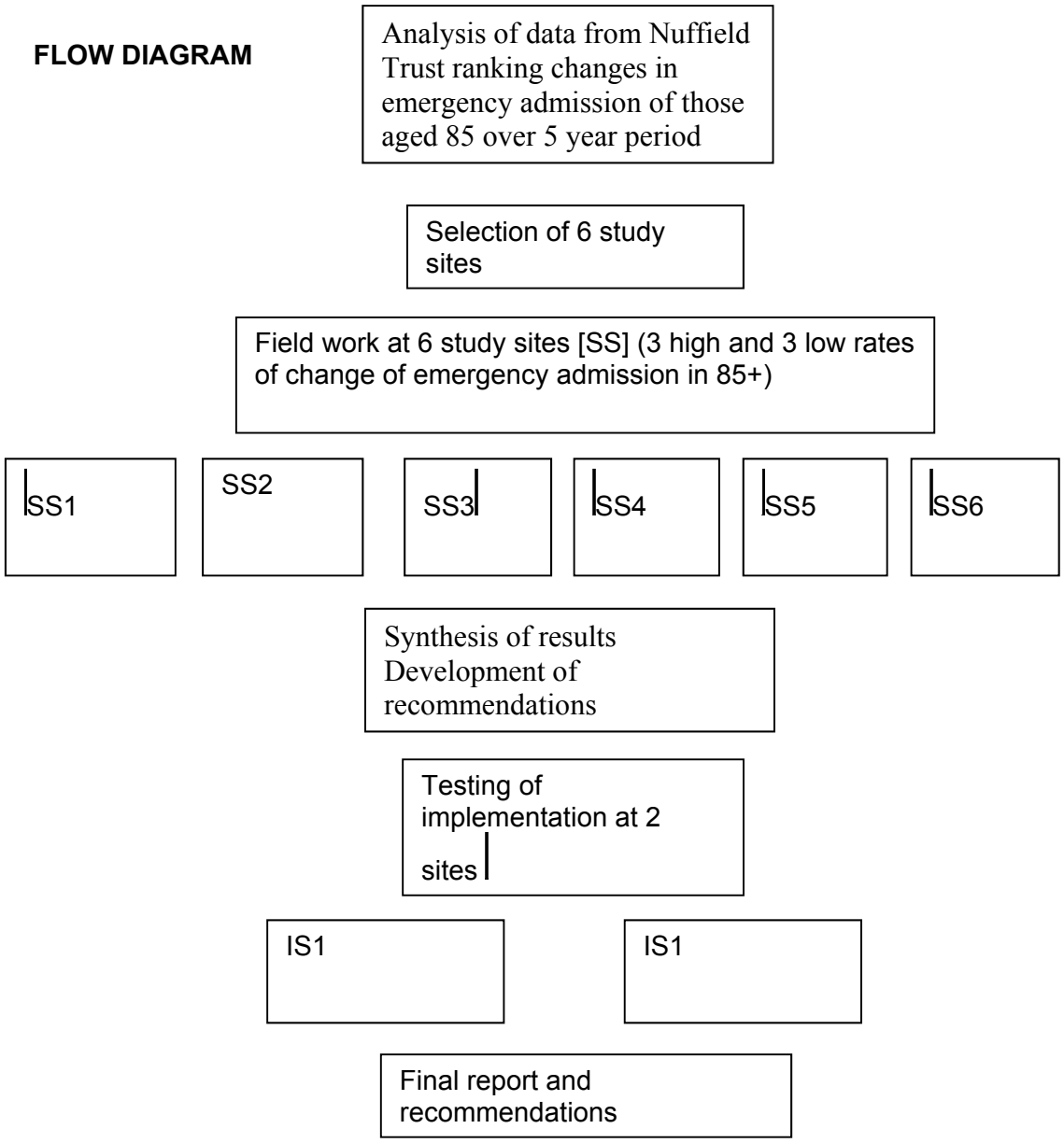
FLOW DIAGRAM



This protocol refers to independent research commissioned by the National Institute for Health Research (NIHR). Any views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NHS, the NIHR, the SDO programme or the Department of Health.