Full title of project

Drivers of Demand for Emergency and Urgent CarE services (DEUCE): understanding patients' and public perspectives

Summary of Research

In England, urgent care is provided by a range of services including emergency services (999 ambulance service, emergency departments and hospitals dealing with emergency admissions), urgent care services (GP out of hours, minor injury units, walk-in centres, NHS 111) and in-hours general practice (requests for same day appointments and telephone advice). Concerns have been expressed about the increase in demand for some of these services (specifically ambulance, emergency department and in-hours general practice) and their capacity to deal with this demand. A key concern is the use of a higher acuity service than is clinically necessary. For example, people attending an emergency department when their problem could be dealt with by general practice, or people using urgent appointments with GPs when scheduled appointments or self-care could be used. We need to know more about population attitudes to seeking health care, reasons for people's decision-making, and what might help people to make choices.

We plan to undertake three sequential studies. Work Package (WP) 1 is a realist synthesis of how people make decisions to use different types of services for urgent care. We will build on recent reviews which identify the range of factors affecting demand for emergency and urgent care services by identifying underlying reasons for the decisions people make, potential ways of reducing clinically unnecessary use of services, and gaps in the evidence base in terms of important sub-groups which have not been studied sufficiently. WP2 is a qualitative study, interviewing people about how they make decisions to use emergency services, urgent care services, routine or self-care. We will interview three sub-groups of the population who have been identified as making clinically unnecessary use of services but where little qualitative research has been undertaken. Selection of these groups will depend on WP1 but may include deprived communities in highly urban areas, young people aged 18-25 without children, and parents of young children. 48 face-to-face interviews will focus on why people make decisions to contact different services, trying to understand what lies at the heart of their behaviour and what might help them to use non-urgent services or self-care when it is not clinically necessary to use emergency or urgent services. Three focus groups will identify potential solutions to help people in their decision-making. WP3 is a national survey of 3000 adults in Britain, undertaken as part of the NatCen British Social Attitudes survey. Questions will be informed by a recent rapid review (Turner 2015), the findings from WPs 1 and 2, a PPI event, and the HS&DR-funded Turnbull study on sense-making and burden of care in urgent care. We will ask about attitudes towards seeking help from different providers of emergency and urgent care, including perceptions of availability of services, expectations of a 24/7 culture, preferences for emergency care services, risk perception, awareness of alternative services and health literacy. We will measure the proportions of people who have different attitudes and which of these affects the propensity to use levels of services that are not clinically necessary. We will look at how these attitudes vary by different population sub-groups.

This study will complement organisational interventions aimed at improving emergency and urgent care as part of the current new models of care/vanguards policy (NHS England 2014). The intention is that it will help policy makers to plan future ways of managing demand so that service provision works for patients and is sustainable in the future.

Background and Rationale

The problem of demand for urgent care

In England, urgent care is provided by a range of services including emergency services (999 ambulance service, emergency departments and hospitals dealing with emergency admissions), urgent care services (GP out of hours, minor injury units, walk-in centres, NHS 111) and in-hours general practice (requests for same day appointments and telephone advice). Concerns have been expressed about the increase in demand for some of these services (specifically ambulance, emergency department and in-hours general practice) and their capacity to deal with this demand.

In England, use of 999 ambulance services doubled from 4 million calls to 9 million a year between 1994 and 2012, and use of emergency departments doubled from 7 million first attendances to 14 million between 1966 to 2006 (Turner 2015). Consultation rates per person in general practice increased by 10% between 2007 and 2014 (Hobbs 2016). This increase in demand is considered to be partly responsible for failure to meet performance targets in these services (https://www.england.nhs.uk/categorynewsnhs-support-plan-launched-re-waiting-times/ accessed 17/6/16). There are concerns that services in England, as currently configured, are reaching saturation (Hobbs, 2016). Hobbs concludes that "One important focus for the NHS could be strategies to reduce patient health-seeking behaviours and increase self-management" (Hobbs, 2016). Although Hobbs concluded this in relation to both routine and urgent use of general practice, this shows the strain within a service which deals with half of all urgent care events (Knowles 2012).

A key concern is the use of a type or level of service that is not clinically necessary. For example, people attending an emergency department when their problem could be dealt with by general practice, or people using urgent appointments with GPs when scheduled appointments or self-care could be used. We need to know more about population attitudes to seeking urgent health care, reasons for people's decision-making, and what might help people to make good choices for them and for the sustainability of services in the emergency and urgent care system.

National policy

In response to the pressure within the emergency and urgent care system, NHS England embarked on a major review of emergency and urgent care services. In 2013 they set out their strategy for development of a system that is more responsive to patients' needs, improves outcomes, and delivers clinically excellent and safe care (NHS England 2013). They then established a set of recommendations for specific services in the emergency and urgent care system for a safer, faster, better system (NHS England 2015). Alongside this, in 2014, the NHS Five Year Forward View explained the need to redesign urgent and emergency care services and set out new models of care needed to do this. 'Vanguards' were funded to provide new care models including new approaches to improve the coordination of emergency and urgent care services and reduce pressure on emergency departments (https://www.england.nhs.uk/ourwork/futurenhs/new-care-models/ accessed 17/6/16).

Need to understand drivers of demand in different sub-groups of the population

It is important that organisational changes are made to manage demand and improve emergency and urgent care provision, and that these changes are evaluated. This is occurring now through the new care models which are undergoing national and local evaluation. In complement to this there is a need to understand drivers of demand for the range of services providing urgent care, and demand for different types of services when this is not clinically necessary. A recent rapid evidence review of the research on demand for urgent care identified that population increases only partially explain increases in demand for emergency and urgent care internationally (Turner 2015). Other potential determinants of increases in demand have not been formally tested due to the lack of availability of longitudinal data. Turner identified a number of *potential* causes of this increase:

- health factors (increases in the prevalence of chronic conditions, and drug and alcohol dependency);
- socioeconomic factors (increases in deprivation, isolation, living alone, lack of social support);
- patient factors (changes in decision-making behaviours related to lack of awareness of alternatives to emergency services, increasing expectations of immediacy of access to care, changing priorities in terms of convenience within a 24/7 culture, increasing risk aversion, decreasing health literacy for self-management and decision making, increasing preference for emergency departments, and increasing perceptions of the lack of availability of primary care urgent appointments);
- organisational factors (reduction in access to primary care, geographical differences in provision);

- and policy factors (changes in insurance coverage, cost, numbers of hospitals and beds).

The review found that reasons for seeking urgent care have been identified largely from research on emergency department users and that research was needed which took a whole system perspective (ambulance services, GP out of hours, urgent care centres, GP in-hours etc) (Turner 2015). There is also a need to ‘dig deeper’ and identify underlying drivers of demand and solutions that might address these. For example, Hunter (2013) undertook a qualitative interview study of a sub-group of the population - people with long term conditions – and concluded that patients were knowledgeable and discriminating users of services who drew on their experience of healthcare to choose between services. They learnt that emergency services met their needs and that this was reinforced by health professionals in those services. They identified ‘recursivity’ at play, where actions are shaped by previous experiences. The implications of this are that strategies which emphasise the need to educate patients about healthcare use (such as ‘Choose Well’) assume that awareness of services is the underlying issue but would not change help-seeking behaviours in this group. Indeed the authors recommended that staff rather than patients needed to change so that they modified care experiences that shaped patients’ decision-making. In another recent qualitative study of people contacting the ambulance service with primary care problems, some people chose to contact the ambulance service and not their GP because it was more likely to leave them at home whereas the GP was more likely to send them to hospital (Booker 2013). People had high levels of anxiety which needed to be allayed but knew from past experience that hospital was not necessary. A potential solution here lies not in encouraging patients to call their GP instead of an ambulance because that is more ‘appropriate’ but in removing barriers to GPs managing risk in this situation. There are likely to be other sub-groups where similar in-depth qualitative research could identify underlying causes of help-seeking.

Health literacy may be a driver of help-seeking behaviour. Health literacy enables people to make judgements and take decisions in everyday life concerning health care, disease prevention and health promotion to maintain or improve their quality of life. It has been viewed as an individual skill but increasingly the relevance of an individual’s social support system (e.g. partner, family, community) and context (e.g. the healthcare system available) is viewed as important (Heijmans 2015). Recent studies undertaken in emergency departments in the United States have focused on health literacy driving the use of emergency departments for non-urgent problems. They have found that people with lower health literacy had a preference for using emergency departments, and made lower use of GPs (Schumacher 2013); that care-givers with low health literacy were more likely to attend paediatric emergency departments for non-urgent issues (Morrison 2014); and that people were more likely to return to an emergency department if health literacy was low (Griffey 2104). More widely, moderate evidence has been found that lower health literacy was associated with greater emergency care use (Berkman 2011). We are not aware of research on health literacy and urgent care use in the UK. Indeed in Berkman’s review all the health care studies were conducted outside Europe. However, when exploring reasons for variation in avoidable emergency admissions, health professionals perceived a ‘neediness’ for immediate access to emergency and urgent care from urban deprived communities which went beyond the higher levels of illness they suffered (O’Cathain 2015). This perceived ‘neediness’ may be related to health literacy and solutions to demand for some sub-groups of the population may lie in addressing this.

We wish to understand underlying drivers of demand for emergency and urgent care in different groups to help to inform future service planning and the types of interventions needed to reduce future demand. We need to know more about underlying reasons for people’s decision making, public attitudes to seeking emergency and urgent care, and what might help people to make good choices for them and for the emergency and urgent care system.

Need to identify innovative interventions

Policy makers in England have taken an ‘organisational intervention’ approach to managing demand for emergency and urgent care services by introducing new services to directly manage demand. In the past, telephone advice and triage have been introduced via NHS Direct and then NHS 111 to address the lack of awareness in the general population of the services available and the ability to make judgements about which is best for their problem. Both of these services have proved to have minimal impact on reducing demand for emergency services (Munro 2000; Turner 2013), even though NHS 111 receives 24 million calls per year. New alternatives for access to urgent care, such as walk-in centres and primary care-led centres, have been introduced to address the issue that lack of availability of alternatives for urgent care may increase use of emergency services. The evidence is mixed about the impact of these on the use of emergency departments but even where it is positive, the size of effect has been very small and use of the new centres has added to utilisation of urgent care services overall (Arain 2014). The ‘Choose Well’ educational campaign informs people about the range of services available to them, including alternatives to A&E to address problems with lack of knowledge of services. Currently, organisational changes focus on co-location of general practice expertise in emergency departments (current HS&DR call). Vanguards are establishing new models of care such as offering assessment at the front door of the hospital, funding new urgent care centres in deprived areas, offering on-line support for self-care, and setting up same-day response teams. These initiatives will be evaluated and hopefully some will improve care for patients and help services to manage demand.

Our study complements this work by taking a step back to understand what drives demand and then letting this inform a wider view of potential interventions. We will ask patient themselves about the interventions needed, and any drivers identified in our study will be related to interventions that could address those drivers e.g. education in schools and parent groups to raise health literacy levels specific to self-care, use of health services and managing risk; changes in the way established services communicate with and respond to patients with high anxiety levels. Our study may also enhance current evaluations of new models of care by helping to interpret reasons why they did or did not work.

Importance to policy makers and service providers

Two of the five key themes of the NHS England urgent care review were (i) helping people with urgent care needs to get the right advice in the right place, first time and (ii) providing better support for people to self-care (NHS England 2013). The focus on the right advice in the right place relates to reducing unnecessary use of emergency services where urgent or routine care services are more suitable for health problems. The focus on self-care is about ensuring people seek urgent care only when necessary. Our proposed study will help policy makers to understand what drives demand for urgent care provided by different services, and the range of interventions that might help to change demand. This will help emergency services which are under pressure to meet increasing demand. This will also help to interpret the findings from evaluations of ‘vanguards’ in emergency and urgent care. If the vanguards do not work then our study will throw light on why, and identify alternative approaches to managing demand.

Importance to patients

Patients deserve health care to meet their clinical needs and want an NHS that is accessible and sustainable. Concerns about the ability of emergency and urgent services to meet the needs of the population are highly relevant to patients. Current levels of demand are affecting the performances of services and therefore potentially the quality of care received by patients. Some individual patients may prefer to seek care from emergency services than from urgent care or routine services, or self-care. Some patients may feel they have no alternative but to seek help from emergency services even when their health need is not an emergency because alternatives do not address their needs. However, at a population level, using services when this is not clinically necessary may not be sustainable, and may result in poor quality care for patients who need these services. It is important for patients as well as policy makers that demand is managed, and that we understand drivers of demand to help us develop interventions to do this.

There is the potential that this study is seen as blaming patients for making poor decisions when seeking help. We want to emphasise that we do not see patients as ‘the problem’ and seek to find solutions to ‘fix’ them. People make decisions that are rational to them. For example, if they need to make considerable effort to get an appointment with a GP, and then wait weeks or months for a referral to outpatients to have a health problem investigated, then a visit to an emergency department may be more accessible to them and may result in the immediate set of tests they seek to allay their anxieties. Use of emergency services could allay their fears in a matter of hours rather than months. Here the issue driving demand for emergency services could be viewed as accessibility of alternative services. However there might *also* be further issues at play around health literacy (poor levels of knowledge which might result in high levels of anxiety about minor problems), recursivity (experiences of emergency services offering immediate access to diagnostic tests for minor problems so that people stop using alternative services) or convenience.

Why this research is needed now

Policy makers and providers of services offering emergency and urgent care are concerned about the ability of services to deal with increasing demand both currently and in the future. They have introduced organisational interventions to manage demand for urgent and emergency care, such as NHS 111, and are introducing further changes via the vanguards. A recent evidence review concluded that increases in demand for urgent care cannot be fully explained by increases in population size or the aging population (Turner 2015). Although the review identified a number of potential causes of this increase, the review concluded that there is a need for more understanding of the determinants of demand because the majority of research to date has focused on use of emergency departments rather than considering demand from a whole system perspective. There is a need to understand underlying perceptions, attitudes and beliefs that drive decisions to use emergency and urgent care, and any interventions that could help people to manage minor problems using self-care or lower acuity services. There is a need to measure the extent to which these drivers affect demand from different sub-groups in the population. It is likely that different sub-groups of the population experience different drivers and may require different interventions. The intention is that this study will help policy makers to plan future ways of managing demand so that service provision works for patients and is sustainable in the future.

Aims and objectives

Aim

To understand drivers of demand for urgent care from patients' and public perspectives.

Objectives

1. To identify drivers of demand for urgent care from the range of emergency, urgent and routine health services available, in particular drivers of the propensity to seek care from a higher acuity service than is clinically necessary (evidence synthesis and qualitative interview study).

2. To understand how different sub-groups of the population make decisions about help-seeking to inform potential intervention strategies (evidence synthesis, qualitative interview study and general population survey).

3. To measure the prevalence of public attitudes towards seeking urgent care, and how these vary in different circumstances, and by different sub-groups of the population (general population survey).

Research Plan / Methods

Conceptual framework

Four conceptual issues are relevant to the study.

First, as recommended by a recent evidence review (Turner 2015), our study takes an emergency and urgent care system-wide perspective rather than focusing on demand for a single service such as emergency departments or ambulance services.

Second, our focus is on patients' and public perspectives of seeking urgent care. Their perceptions will include factors operating at meso, macro and micro levels. Therefore an ecological model encompassing these levels will shape our study and we will view our findings in the context of policy, organisational and societal issues which affect people's decision-making. We are not aware of an existing conceptual model for demand for emergency and urgent care. Turnbull's current HS&DR study will partly fill this gap by constructing a conceptual model of one part of the system: utilisation of urgent care services. An existing conceptual model focuses on another part of the system: demand for emergency departments (He 2011). This ecological model draws attention to the role of health care system and policy factors, as well as the micro-level factor of individual perceptions of severity of illness, quality of care and benefit. A review of ambulance services for 'primary care sensitive conditions' constructed an ecological model of infrastructure, population and health professional factors (Booker 2015). These existing ecological models will act as useful reference points for our study.

Third, we use the term 'clinically necessary' use of services. We can define this by clinicians' perceptions that their service was the right level of acuity for a patient. This can also be identified by the level of management or treatment a patient receives from a service. For example, at an emergency department this would be someone who is discharged without treatment or has tests or treatment that could have been undertaken in primary care. We use the term 'clinically necessary' rather than 'appropriate' because individuals may have valid reasons for using services offering higher acuity care than their clinical needs. We take the 'population perspective' rather than the 'individual patient perspective' that if all patients use a level of service that is clinically unnecessary, these services will not be sustainable in the future. Therefore we have to understand drivers of 'clinically unnecessary' use of services and interventions to manage it.

Finally, we are interested in the effect of health literacy on decisions to use different services for urgent care. We view this in a 'clinical risk' paradigm currently adopted by US researchers in emergency care (Nutbeam 2008). That is, people with low health literacy have difficulty assessing clinical risk and therefore use emergency and urgent services when this is not clinically necessary. This is in contrast to a 'public health' paradigm where poor health literacy prevents care-seeking when needed, leading to poor health.

Definitions

Urgent care is the care an individual seeks when they perceive they need health care or advice urgently (a Department of Health definition). They can seek it by contacting a GP for a same day appointment, attending a walk-in centre or emergency department, or calling NHS 111 or 999. This can occur at any time of the day. Unscheduled care is when a patient does not make an appointment e.g. attendance at an emergency department or walk-in centre or attendance at a general practice first thing in the morning to wait for a GP (this was prior to advanced access appointment systems in general practice). Out of hours care traditionally occurs outside the times of 8am-6pm Monday to Friday. Most out of hours contacts should be urgent, although some recent initiatives such as Saturday and eveningopening times in general practice are for routine care.

Design

This is a sequential mixed methods study with three work packages (WPs): evidence synthesis (WP1) followed by a qualitative interview study (WP2) followed by a population survey (WP3). Each WP influences the next. The Turnbull study runs in parallel with our study, also influencing each of our work packages. Integration occurs throughout the study (e.g. evidence synthesis identifies sub-groups for the interview study) and at the end when findings from all work packages are integrated using Triangulation Protocol (Farmer 2006). See attached flow diagram for study design.

Setting/context

Our study takes a population perspective of demand for emergency and urgent care, including people who use self-care, routine care, urgent care or emergency care. The setting is largely England. The evidence synthesis in WP1 will be international, with attention paid to the country and timing of the included research to assess relevance to England currently. The qualitative interview study in WP2 will recruit from two geographical areas in England. The WP3 survey is a representative sample of the British population.

Methods

WP1 Evidence Synthesis

Background

Turner's recent rapid review included a focus on demand for urgent care 1995-2014 (Turner 2015). It identified a range of study types, including surveys, qualitative research and analysis of routine data. It identified a number of factors affecting demand including access to and confidence in primary care; perceived urgency, anxiety and the value of reassurance from emergency-based services; perceived need for emergency care, treatment or investigations; views of family, friends or healthcare professionals; convenience in terms of location, not having to make appointments and opening hours; and individual patient factors. At the outline application stage our plan was to update this review but Turner and Coster (co-applicants) have updated it to April 2016 while preparing for publication in a peer-reviewed journal. Therefore we will focus on the second issue highlighted in our outline application. Our study will build on Turner's up-dated review by focusing on underlying issues driving use of services. Qualitative research of patients' perceptions of seeking emergency and urgent care can offer a deeper understanding of underlying issues than other types of research. Also, researchers will sometimes suggest interventions that might best address the issues they identify and these proposed interventions will also be extracted. For example, when considering decision-making by people with long term conditions, Hunter (2013) found that people's actions were shaped by previous experiences with services i.e. recursivity; the researchers identify the potential solution of emergency services changing their approach in order to affect change in patients' decision-making. Booker's review of ambulance services (2015) identified individuals' perception of risk as a key factor and the need to identify interventions to help patients understand risk. Drivers and potential solutions at a system-level, service-level and patient-level will be considered in line with the conceptual framework (see earlier). We cannot investigate large numbers of drivers/theories and we will have to focus on a few of the most important ones. We cannot select which theories to focus on now because we will identify a list of theories from the first tranche of literature in the realist synthesis. We expect to focus on 3-6 theories, selecting those that are most frequently occurring within the literature with high relevance to the UK population.

Different sub-groups of the population may experience different drivers and require different solutions in different circumstances. Therefore we will identify drivers for different sub-groups. We will also identify important sub-groups where in-depth qualitative research has not been undertaken in the UK; any evidence gaps will inform our selection of sub-groups in WP2.

Type of review

We have used guidance on choosing qualitative evidence synthesis methods to consider the best approach to take to our evidence review (Booth 2016). Our intention is to consider underlying drivers of demand so approaches such as critical interpretive synthesis, meta-ethnography and realist synthesis which use rich data and contextual detail are more appropriate than descriptive approaches such as thematic synthesis which Turner and colleagues used in their review. A realist synthesis is appropriate because of our desire to consider underlying mechanisms, the contexts which shape those mechanisms, and the subsequent outcomes (self-care through to emergency care use). The characterisation of realist synthesis as 'What works for whom under what circumstances?" is relevant to our focus on different sub-groups of the population, recognising that drivers of demand may differ by sub-group. Realist synthesis is a relatively new method and we will pay attention to publication standards (Wong 2013) and reflections on experience (Rycroft-Malone 2012) as well as published training material (Wong 2014).

Review strategy

Although our original plan had been to focus only on qualitative research, multiple types of information and evidence can be included in a realist review. We will include multiple types of information, although it is likely that qualitative research will provide the rich information relevant to the focus of the review. We will start with Turner's updated review which identified 19 qualitative studies (1995-2016), Turnbull's review which identified 60 qualitative studies (1990-2015), and Booker's review which identified 6 qualitative and 14 mixed methods studies (1980-2014). Turnbull's review is focused on definitions and conceptualisations of urgent care but includes a large number of articles relevant to our study. Some papers will appear in more than one of these reviews. International literature will be included and the role of context considered e.g. need to pay for attendance for health care in the US is not relevant to UK policy makers and patients.

Review methods

We will use the literature from the reviews mentioned above to identify provisional theories about how people make decisions about accessing urgent health care. Theories may already be identified in the literature e.g. recursivity (Hunter 2013) and perceptions of risk (Booker 2015). We will also develop our own theories. These provisional theories will be further tested and refined through iterative cycles of focused searching and data extraction. The resultant theories which explain the underlying drivers of demand for urgent and emergency care will be reported according to RAMESES publication standards for realist syntheses (Wong et al 2013).

Quality Assessment

Quality assessment is not as formal as within other evidence synthesis approaches. We will follow realist synthesis guidelines on this (Wong 2013). For each paper the quality criteria for inclusion will be relevance to the study for the first search and relevance to theories under investigation for further search iterations, whether the context is described in sufficient detail, and whether the methods used are credible and trustworthy. How we determine the latter criterion will depend on the study design for each paper. We will apply short versions of relevant tools to assess quality where possible. We will exclude papers based on relevance and context detail but not on methodological rigour. Instead we will consider the rigour of studies in our analysis and interpretation.

Analysis

The realist synthesis has been chosen as an approach because it facilitates in-depth analysis of literature. The Research Associate (RA) will code each paper in the first search iteration by context (year; country; service; type of user e.g. not clinically necessary, common user, frequent user) and sub-groups (e.g. young adults, deprived community coded by whether they are the focus of the paper, a by-product of the context, or are discussed in terms of specific findings). This will help to identify where literature exists on different sub-groups. AOC, JC, EK and RA will meet to discuss a few papers selected from across the spectrum of context and sub-groups. We will identify drivers highlighted explicitly by the researchers and key findings which may lead to development of drivers. This discussion will shape the content of a data extraction form which will be applied to each paper (or a sample of papers where there are lots of papers on similar groups). We will identify findings using direct quotes from the papers, and extract relevant quotes from participants. We will consider how to divide the full set of papers up and each analyst will extract from a set of papers. Division by sub-group may be appropriate. Team discussion is essential throughout this whole process. During team discussions we will look for chains of inference (connections) across the extracted data. We will present these to our wider team and PPI reps for feedback. When we have identified 3-6 theories/drivers that appear across the spectrum of contexts, we will undertake further iterations of searches around those specific drivers. Each analyst will select 1-2 drivers, undertake further searches and data extraction, discussing their search strategies and evolving understanding of that driver with the team.

WP2 Qualitative interview study

Background

We will undertake a qualitative interview study with three sub-groups of the population to identify decision-making processes about help-seeking for urgent care.

Justification for sub groups

We will not select the sub-groups until we have started the WP1 evidence synthesis and understand the amount of evidence related to different population sub-groups. Selected sub-groups will need to be known high users of emergency and urgent care, and in particular high users of emergency care for non-urgent problems, and urgent care for routine problems. ‘High use’ can be measured as frequency of use or burden of care. Our focus here will be on high frequency use rather than high burden because the high burden groups are likely to face considerable organisational barriers to care provision and these vulnerable groups deserve a separate study (e.g. frail elderly people, people with mental health problems). Using literature we will construct a list of known characteristics of frequent users of services offering emergency and urgent care, and a list of frequent users where the level of service accessed is considered by clinicians to be clinically unnecessary. Professionals from a range of services in the emergency and urgent care system identified deprived communities in urban areas as having high expressed need for emergency and urgent care, over and above their clinical need (O’Cathain 2014), and are likely to be a selected sub-group if there are few studies of this group in the evidence synthesis. Just considering emergency departments, the highest numbers of users per 1000 population are very young children, young adults, and people over 75; use is twice as high in the most deprived than least deprived decile (HSCIC 2013). People discharged from emergency departments with advice only or no investigations (likely to have no clinical need for an emergency department) are more likely to be very young children (0-2 years old), young adults (18-25) and people in deprived communities (McHale 2013). A paucity of evidence about these groups in WP1 will lead to their selection for this work package. We will attempt to complement Turnbull’s sub-groups of older people with multiple conditions, Eastern Europeans, and young adults (aged 18-25), even though the focus of our analyses are different.

Methods

We will undertake around 16 individual interviews face-to-face in each sub-group, totalling around 48 people. The emphasis will be on understanding drivers affecting different types of people and the interventions that could best address these. After preliminary analysis of the individual interviews we will undertake a focus group (6-10 participants) in each sub-group to consider potential interventions in more detail.

Sampling and recruitment

Maximum variation sampling is extremely important here. We will identify two emergency and urgent care systems with different populations and service configurations/local models of care. The two areas will be informed by WP1 but are likely to be urban areas with some deprived communities within their populations. Sheffield would be suitable for this and perhaps London or Birmingham. We will aim to largely recruit people who clinicians perceive to have used the range of services offering emergency and urgent care when not clinically necessary, that is they were likely to be discharged without treatment, tests or referral. In each area for the face-to-face individual interviews we will work with the ambulance service, an emergency department, and two general practices (deprived community and affluent community). The general practices will allow us to access users of GP out of hours, urgent GP in hours, walk-in centres, minor injury units, or urgent care centres. We will work with one walk-in centre (if it is part of the service configuration that area) to identify recent users not registered with a GP. Services will write to people on our behalf with a covering letter, information sheet and consent form. Based on past experience we will need to write to around five times more people than we wish to interview (O’Cathain 2008). Recruitment for the focus groups will be similar.

Data collection

Individual interviews will take place in people’s homes or a place of their choice. The emphasis will be on understanding drivers affecting their use of urgent care from different services. We will ask about their use of care, what affects the choices they make, the support available to facilitate self-care, and what information or advice or organisational change could help them with their decision-making. We will measure health literacy at the end of interview and consider how this might affect decision-making during our analysis. Focus groups will take place in a space near the selected general practices to minimise travel for participants. They will facilitated by two members of the research team. We will focus on solutions to the problems faced by people because there may be a need to tailor solutions to sub-groups.

Analysis
The first stage of analysis will follow a framework approach. Early transcripts from a sub-group will be read by AOC, EK, the RA and PPI rep and discussed together on a case by case basis to identify drivers for those individuals. Transcripts will be coded using a framework informed by the reading of transcripts, the Turner review and the realist review. As transcripts are completed, team discussion will occur for each transcript prior to coding by the RA. We will consider the local models of care available to interviewees when analysing the data. Framework is an excellent approach to starting an analysis but can lead to a descriptive analysis unless the last stage of the framework – mapping- is taken seriously. The case by case discussion and the concept of a 'core category' (Strauss and Corbin) can help to push this stage into a more in-depth analysis through identification of drivers rather than themes and constant comparison within and between sub-groups. As drivers and the contexts in which they occur are identified, these will be taken to the wider team and PPI reps for further discussion.

For the focus groups we will use framework analysis (Ritchie 2003) using a framework of solutions identified in the individual interviews and open to emergent themes. We will pay attention during data collection and analysis to whether participants see interventions as relevant to others but not them, and the extent to which they would engage with these interventions themselves.

WP3 Population survey

Background

Public perceptions, attitudes and beliefs can shape use of urgent care. These may differ by sub-group and may change over time. We will undertake a general population survey to identify the prevalence of attitudes to seeking health care, and how they differ by characteristics of the population such as age, gender, long term illness, deprivation, ethnicity, rural/urban, region and health literacy adequacy. We will test the relative effect of different determinants of the propensity to use different services when it is not clinically necessary.

Methods

NatCen run the British Social Attitudes Survey (BSA) to measure social attitudes annually on a random sample of 3000 people in Britain. We will buy a 60 item module for all 3000 respondents in the 2018 survey. A key advantage to embedding our questions in this survey rather than carrying out our own survey is that most of the questions are undertaken face–to-face by an interviewer, with a self-completion supplement. In comparison to a postal survey it allows for more complex questions to be asked, and obtains a better response rate and therefore is more representative. The face-to-face administration is very important given that one of the aims of the survey is to identify differences between population sub-groups with different deprivation levels and health literacy levels.

Sampling

BSA uses random probability sampling and selects one adult respondent aged 18+ to interview at each address sampled from the Postcode Address File to yield a representative sample of adults aged 18 or over. For practical reasons, the sample is confined to those living in private households. People living in institutions are excluded. The sampling design takes the form of a stratified, clustered random sample.

Sample size

3000 is a sufficient sample size for various sub-group analyses, although some variables can only be analysed using a crude binary categorisation e.g. ethnicity. Sample size calculations for our range of analyses are not as straightforward as those for a simple prevalence survey. Our focus is on how issues vary by sub-groups of the population. This is why we went for the largest sample size possible. We calculated the Chi-squared p-values for a key question of whether different age groups are 'definitely or probably' likely to attend an emergency department for a scenario where attendance is not clinically necessary. We would consider a distribution of 25%, 21%, 19%, 19%,17%, 16%, 14% for the age groups in the table below to be 'clinically significant'. The p -value for the 1000 sample is

0.308, for the 2000 sample is 0.018, and for the 3000 sample is 0.001. The 3000 sample offers the level of statistical power required to identify clinically significant differences between the wide range of groups we intend to test.

Sample sizes (unweighted bases) for one, two and three versions of the questionnaire, BSA 2015

	1000	2000	3000
Age			
18-24	73	158	228
25-34	149	306	479
35-44	177	367	555
45-54	189	383	567
55-59	92	183	263
60-64	103	188	283
65+	320	594	887
All	1105	2183	3266

Guiding the content of questionnaire

The content of the questionnaire will be informed by the rapid review of evidence (Turner 2015), Turnbull's on-going review, our evidence synthesis (WP1), Turnbull's qualitative interviews, emerging findings from our qualitative interview study (WP2) and a PPI event (see PPI section). We offer detail of the content of the questionnaire below, based on Turner's review and our knowledge of this area, recognising that it will change based on earlier parts of our proposed project. Questions will be developed in conjunction with BSA researchers and piloted twice using their standard processes of tests on around 50 respondents at each pilot. Where possible we will use validated questions from relevant surveys e.g. GP Patient Survey; this will also allow us to compare our descriptive findings with other research.

Questions

(i) Propensity to use services when not clinically necessary

We will construct three scenarios: one where care is needed immediately from an urgent care service (NHS 111, GP in hours same day, GP out if hours, walk-in centre etc), one where care is needed from a GP within a few days for a non-urgent problem, and one where self-care could be undertaken. We will construct these scenarios with clinical input from SG who is an academic emergency department consultant, JD who is an academic GP, and our PPI group. Respondents will select the action they would take in practice for each scenario. The response set may be similar to Adamson's (2009) where respondents select 'Definitely/ Probably/ Unlikely/ Not at all' to a) Talk to other members of the family or friends b) Go to the chemist for advice and/or tablets c) Go to the hospital casualty department d) Call or go to your general practitioner immediately or the next day e) call an ambulance f) go to GP at next available appointment. We will measure the proportions of people selecting a higher or lower level of care than clinically necessary for each scenario. If they select an emergency service we will ask why. We will identify differences in selections by respondent characteristics, perceptions and attitudes to emergency and urgent care, and health literacy levels (see details below). A particular interest will be identifying the characteristics and attitudes the people selecting higher options than considered clinically necessary. If the review or interviews identify the need for more scenarios we will do this.

(ii) Perceptions, beliefs and attitudes to urgent care

We will construct a set of questions about perceptions of, beliefs about, and attitudes towards services when seeking urgent care. Examples include statements which respondents can agree or disagree with on a five point Likert scale: 'I can't get an appointment with my GP'; 'I prefer places where I do not need to make an appointment'; 'I am confident that I can tell when I need to get medical care and when I can handle a health problem myself.'

(iii) Health literacy

Researchers in the US are studying the effect of low health literacy on emergency department use and developing interventions to address this (Schumacher 2014). Although health literacy is associated with social class and educational attainment, 29% of people attending emergency departments for non-urgent issues were found to have a college education and low health literacy (Morrison 2014). This may be an important driver emerging from WPs 1 and 2 and we want to measure it in our survey. Duell (2015) undertook a systematic review of measuring health literacy in a clinical environment and found that the Newest Vital Sign (NVS) was the most acceptable approach. It is an orally administered 6-question test requiring 2 to 6 minutes to complete, measuring the composite skills of both print and numeric literacy. It has been dichotomised into an adequate health literacy group (score 5 to 6) and a low health literacy group (score 0 to 4) and used successfully in a study of health literacy in parents attending a paediatric emergency department for non-urgent problems (Morrison 2014). It is suitable for our survey because it is short. First it provides participants with medical instructions such as those on a prescription label. Participants review these and then answer questions that test their understanding of the information. Second, they are given text about medical topics with selected words deleted and replaced with blank spaces. The participants must fill in the blank spaces using words selected from a multiple choice list of options. This measures reading and interpretation skills (ie, general literacy, reasoning, and the ability to use numbers) as applied to material with health content. We have some concerns about this test in case it reduces willingness to participate in the rest of the survey because it may make participants feel judged. We will test this in the first pilot and look for an alternative measure if the NVS is problematic.

(iv) Respondent characteristics

BSA collects a wide range of high quality background material about each respondent including sex, age, marital status, tenure, region, household structure (including number of dependent children), educational qualifications, disability, ethnicity, religion, and full occupational and employment status details. In addition, relevant questions from other modules will be available as additional analytic variables. We will collect data on relevant background characteristics including recent use of health care and existence of long term illness.

Data collection

BSA is carried out by highly-trained interviewers to the highest ethical standards. Their standard incentive scheme is for every selected address to receive an unconditional £15 post office voucher as part of the advance mailing they receive before the interviewer's first visit. This voucher can be exchanged for £15 cash at any post office.

Analysis

Over the last seven years the response rate for the face-to-face element has ranged from 47% to 55%. BSA uses a robust sampling and weighting method, with weights applied for unequal selection probabilities, non-response and then calibration weights. It therefore enables generalisations to be made to the population at large.

We will first summarise the proportion of responses for each question relating to the propensity to use higher levels of service than clinically necessary, the perceptions, beliefs and attitudes to urgent care and health literacy. Proportions along with 95% confidence intervals will be calculated for the whole population and for sub-groups of the population. Regression models will be used to make comparisons between the responses for different sub-groups. Logistic regression will be used to compare the proportion of people selecting a higher level of care than clinically necessary and linear regression models will be used to compare the response to questions on the perceptions, beliefs and attitudes to urgent care. For responses measured on a Likert scale, linear regression is preferred over ordinal regression because of its ease of interpretation and with a large sample size linear models will be robust due to the central limit theorem (Heeren1987). All analyses will take into account the weighting from the BSA survey that correct for unequal selection of addresses etc.

The analysis of the survey will also be shaped by drivers and hypotheses generated from WP 1 and WP2. Questions will be included in the questionnaire to test the prevalence of drivers and test some hypotheses about these drivers. To ensure this can occur in the short time frame allowed for analysis of the survey, we will construct a detailed analysis plan prior to the survey data collection completion.

Future

This dataset could act as the baseline for future surveys to understand trends in these determinants. Trends could be used to predict future demand and thus help with future service planning.

Integration of work packages

Attention to integration is important within mixed methods studies so that the whole is more than the sum of the parts. Integration is built into the design in that early work packages will inform later work packages. The evidence synthesis (WP1) will inform the sub-groups selected for the qualitative interview study (WP2) and the analysis in WP2. Findings from WP1 and WP2 will inform the content of WP3 (population survey). Interpretation of WP3 may be informed by returning to WP1 and WP2 to help understand any unusual findings in WP3. Finally, findings from all work packages will be brought together at the end of the study using triangulation protocol to identify overall learning about drivers of demand for emergency and urgent care (O'Cathain, 2010; Farmer 2006).

We have used with success an adapted Triangulation Protocol in previous studies to bring together the key findings from each component of a study and identify overarching conclusions and recommendations from the whole study. We will use that approach here. First we will identify drivers and other key findings from each component. We will identify themes from these drivers and key findings and consider the drivers and key findings within each theme. We will consider how drivers and findings converge, complement, disagree or are not there in the three components. This will help us to refine our understanding of drivers and potentially develop new drivers. This sounds abstract and an example is given to help explain the process (although making one up has been a challenge). For example, from the literature review recursivity appears to be a driver for people with long terms conditions. We find there is evidence of recursivity in studies of emergency department and ambulance users in the literature but it is not clear whether this is because there are people with long term conditions in the samples of those studies. Recursivity is also identified in the interview analysis and found to be present for the deprived community subgroup and the young children subgroup but not the young adults, in the absence of a long term condition. Recursivity here is generated from the experiences of family and friends as well as self. The survey shows that answers to a question related to recursivity are associated with a number of characteristics including age, deprivation, presence of a long term condition and frequency of using emergency and urgent care, with frequency of use having the most explanatory power. We conclude that recursivity is a driver that develops over time in frequent users of emergency services or people operating in family-friendship networks making frequent use of emergency services, which goes beyond the original finding that it occurs in people with long term conditions. Any recommendation would then relate to interventions which address recursivity in this wider context.

Dissemination and projected outputs

We will undertake academic dissemination by publishing a full report in the NIHR Libraries Journal, publishing a chapter in the BSA report, publishing articles in academic journals, and presenting the research at relevant conferences e.g. international conferences in emergency care (ICEM), national conferences in emergency care (the 999 EMS Research Forum), and health services conferences (Health Services Research UK).

We will work with the Injuries and Emergencies Network to communicate findings to commissioners, service providers, front line staff and the general public. We will send our report and papers to relevant colleges and associations such as the Royal College of Emergency Medicine, the Royal College of General Practitioners, the College of Paramedics, and the British Medical Association. We will also offer to meet with them when findings are available to consider the actions they could take based on these findings, prior to completion of the report. We will write summaries for commissioners and service providers and disseminate the findings at the NHS Confederation emergency and urgent care forum.

Sir Bruce Keogh the Medical Director of the NHS in England continues to review emergency and urgent care with Professor Keith Willett and NHS England. We will inform them of our research and if they wish we will offer input to their endeavour. A co-applicant Janette Turner works closely with NHS

England on emergency and urgent care and can use this relationship to encourage NHS England to engage with our work.

We will ask two commissioners from Clinical commissioning Groups to sit on our Project Advisory Group. They can advise us about communicating with commissioners. In addition, the Director for Planned and Urgent Care at Yorkshire Ambulance Service NHS Trust, Chair of the National Ambulance Urgent and Emergency Care Group and leader of one of the Vanguards, has kindly agreed to join our Project Advisory Group.

Our PPI members will consider how best to disseminate this work to the general population. On past projects, the Sheffield Emergency Care Forum has produced a leaflet for the general public summarising the study findings and the actions they would like to see taken. Another possible approach is to create an animation for use on TV monitors. We will fund the activity that the PPI want to use.

To inform the general public we will press release our findings to promote the reporting of our findings in the media. We will use our Twitter account to disseminate our findings and establish a website which will report findings. The BSA annual report has an established reputation and status and so will provide an excellent mechanism for dissemination. The BSA Survey findings usually receive coverage in the national press and this will facilitate communication to the public. The NatCen Comms team will help us to develop a communications plan to promote the survey results.

Finally we will hold a day conference to disseminate the findings to a range of stakeholders.

Plan of investigation and timetable

We attach a Gantt chart and summarise the study timetable below:

	WP1 Synthesis	WP2 Interviews	WP3 Survey	Study
Feb 2017	Create database of papers	Draft NHS ethics/R&D/NHS Permission forms		PAG – study introduction
Mar –Apr	Extract data	Draft data collection instruments		
May	Preliminary analysis for selection of 3 sub-groups. Iterative searching.	Submit NHS ethics/R&D application and NHS Permissions		
Jun- Aug	In depth analysis	Receive NHS Permissions Recruitment begins		Interim report to funder
Sept- Dec	In depth analysis and writing	Recruitment continues Interviews start with ongoing analysis		PAG – report WP1 findings and early progress WP2
Jan 2018		Interviews continue with ongoing analysis	BSA questionnaire development starts	PPI event
Feb 2018				

			Pilot 1 (Feb/Mar)	
Mar-May 2018	Write up for NIHR report and draft papers for publication	Focus group recruitment Interviews in depth analysis	Pilot 2 (Mar/Apr) NatCen ethics approval for questionnaire Questionnaire finalised (May)	Interim report to funder
Jun - Nov		Focus group interviews and on-going analysis	Survey field work (Jul-Oct)	Interim report to funder PAG – report WP2 findings
Dec 2018			Data ready	
Jan 2018– Mar 2019		Write chapter for NIHR report and draft papers for publication	Analysis Write chapter for NIHR report and draft papers for publication	Interim report to funder PAG – report WP3 findings
Apr –May 2019			BSA report (Spring/summer)	Synthesis of findings from all work packages Write final report to funder Preparation of dissemination materials

Approval by ethics committees

The evidence synthesis (WP1) does not require ethics approval. The qualitative interview study (WP2) will recruit people via services and thus will need NHS ethics approval. NHS ethics approval can only be sought when we have selected our sub-groups because vulnerable groups may require special attention within the ethics application. The survey (WP3) already has ethics approval from the NatCen ethics committee and new modules such as ours will go through the NatCen ethics procedures.

Patient and Public Involvement

We have worked with Sheffield Emergency Care Forum for many years. This is an established group of members of the public with experience of emergency and urgent care services who offer PPI to research studies (Hirst 2016). Over the years SECF has expressed a desire that research is undertaken to understand why there is increasing demand for emergency and urgent care. AOC developed a research plan and discussed it with four SECF members. They were highly supportive of it. They felt there was a need to really understand why people make decisions. We discussed potential sub-groups for the interview study. They were interested in focusing on frail elderly and people with mental health problems because these groups end up in emergency departments when it is not the best place for them. They identified the group of parents with young children as being highly anxious and perhaps without social support, and supported the focus on young people who they felt might hold very different attitudes to people from older generations. They felt it was important not to take a judgemental stance in the research, and to offer financial incentives for interview because people would be hard to recruit (included). They were interested in solutions, and raised the importance of education at school to help people use health services.

Two PPI members have been involved in meetings to develop the proposal since we got through the outline stage. They have identified a second member of SECF to join the management group to influence decisions being made about how to operationalise the research proposal and interpret findings. These PPI members will help to write the lay summary for the ethics application, help to ensure an ethical approach is being undertaken to the research, help to construct the topic guides for the interviews, help to write lay summaries of the findings for dissemination, and help to construct a wide reaching dissemination strategy. During analysis of the evidence synthesis and interviews we will hold analysis sessions with PPI members. On past projects members of SECF have produced a leaflet for the general public summarising the study findings and the actions they would like to see taken. They want to consider more modern approaches to dissemination in the future. We have included costs for these activities.

Two PPI representatives will be members of the Project Advisory Group where PPI will take a more strategic view of how the project is progressing and of emerging findings.

When developing the content of the survey we will hold a PPI event where we will invite around 20 members of the public to consider the WP1 and 2 findings and discuss the key issues they would like to see addressed in the survey. We will invite a wide range of people from established groups in Sheffield: Healthwatch, including Young Healthwatch; Age UK; Sheffield50+ an independent, voluntary group run by and for its members and open to everyone aged 50+ who lives or works in Sheffield; parents group; carers association. The coordinator of SECF has designed the event: we will present findings and discuss them, and then break into three groups to consider the three scenarios for the survey as a way of prompting discussion. A local medical student, a SECF member and a researcher will facilitate the groups. All attendees will be given vouchers, and travel costs will be covered.

Appropriate costs to support the PPI involvement in the project including fees and travelling expenses have been included.

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