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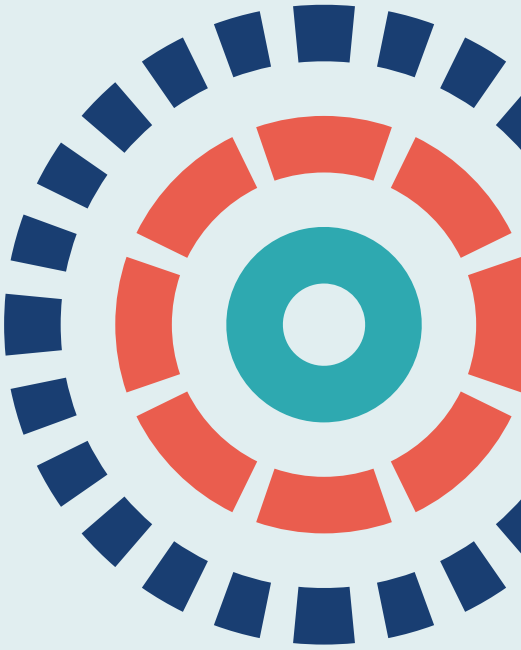

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Abstract

Drivers of 'clinically unnecessary' use of emergency and urgent care: the DEUCE mixed-methods study

Alicia O'Cathain,[1*] Emma Knowles,[1] Jaqui Long,[1] Janice Connell,[1] Lindsey Bishop-Edwards,[1] Rebecca Simpson,[1] Joanne Coster,[1] Linda Abouzeid,[2] Shan Bennett,[2] Elizabeth Croot,[1] Jon M Dickson,[3] Steve Goodacre,[1] Enid Hirst,[2] Richard Jacques,[1] Miranda Phillips,[4] Joanne Turnbull[5] and Janette Turner[1]

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Background: There is widespread concern about the pressure on emergency and urgent services in the UK, particularly emergency ambulances, emergency departments and same-day general practitioner appointments. A mismatch between supply and demand has led to interest in what can be termed 'clinically unnecessary' use of services. This is defined by the research team in this study as 'patients attending services with problems that are classified as suitable for treatment by a lower urgency service or self-care'. This is a challenging issue to consider because patients may face difficulties when deciding the best action to take, and different staff may make different judgements about what constitutes a legitimate reason for service use.

Objectives: To identify the drivers of 'clinically unnecessary' use of emergency ambulances, emergency departments and same-day general practitioner appointments from patient and population perspectives.

Design: This was a sequential mixed-methods study with three components: a realist review; qualitative interviews ($n = 48$) and focus groups ($n = 3$) with patients considered 'clinically unnecessary' users of these services, focusing on parents of young children, young adults and people in areas of social deprivation; and a population survey ($n = 2906$) to explore attitudes towards seeking care for unexpected, non-life-threatening health problems and to identify the characteristics of someone with a tendency for 'clinically unnecessary' help-seeking.

Results: From the results of the three study components, we found that multiple, interacting drivers influenced individuals' decision-making. Drivers could be grouped into symptom related, patient related and health service related. Symptom-related drivers were anxiety or need for reassurance, which were caused by uncertainty about the meaning or seriousness of symptoms; concern about the impact of symptoms on daily activities/functioning; and a need for immediate relief of intolerable symptoms, particularly pain. Patient-related drivers were reduced coping capacity as a result of illness, stress or limited resources; fear of consequences when responsible for another person's health, particularly a child; and the influence of social networks. Health service-related drivers were perceptions or previous experiences of services, particularly the attractions of emergency departments; a lack of timely access to an appropriate general practitioner appointment; and compliance with health service staff's advice.

Limitations: Difficulty recruiting patients who had used the ambulance service to the interviews and focus groups meant that we were not able to add as much as we had anticipated to the limited evidence base regarding this service.

Conclusions: Patients use emergency ambulances, emergency departments and same-day general practitioner appointments when they may not need the level of clinical care provided by these services for a multitude of inter-related reasons that sometimes differ by population subgroup. Some of these reasons relate to health services, in terms of difficulty accessing general practice leading to use of emergency departments, and to population-learnt behaviour concerning the positive attributes of emergency departments, rather than to patient characteristics. Social circumstances, such as complex and stressful lives, influence help-seeking for all three services. Demand may be 'clinically unnecessary' but completely understandable when service accessibility and patients' social circumstances are considered.

Future work: There is a need to evaluate interventions, including changing service configuration, strengthening general practice and addressing the stressors that have an impact on people's coping capacity. Different subgroups may require different interventions.

Study registration: This study is registered as PROSPERO CRD42017056273.

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Glossary

'Clinically unnecessary' use When patients do not need the level of clinical care or urgency of care provided by the service that they contact.

Programme theory In this study, a proposed explanation of patients' behaviour.

List of abbreviations

A&E	accident and emergency	MIU	minor injuries unit
BAME	Black, Asian and minority ethnic	NatCen	National Centre for Social Research
CI	confidence interval	NIHR	National Institute for Health Research
CINAHL	Cumulative Index to Nursing and Allied Health Literature	NVS	Newest Vital Sign
ED	emergency department	PPI	patient and public involvement
GP	general practitioner	SECF	Sheffield Emergency Care Forum
HLQ	Health Literacy Questionnaire	WIC	walk-in centre
IMD	Index of Multiple Deprivation	WP	work package
IPA	interpretative phenomenological analysis		

Plain English summary

The pressure on emergency and urgent care services has led to concern that some patients use these services for problems that could be treated by a less urgent service (known as 'clinically unnecessary' use).

We wanted to understand why people make 'clinically unnecessary' use of ambulances, emergency departments and same-day general practitioner appointments, and what might help them make different decisions. We did this in three ways:

1. We reviewed previous research.
2. We carried out interviews and focus groups with 53 patients whom health professionals thought were 'clinically unnecessary' users of their service. We focused on parents of young children, young adults and people in socially deprived areas.
3. We used a national survey of attitudes to seeking care for health problems. This also identified those people most likely to be 'clinically unnecessary' users of these services.

We found that people used services for a complex range of reasons that were often connected. Some reasons related to people's symptoms. These included worrying about how serious symptoms were and wanting reassurance, feeling unable to get on with daily life, needing immediate relief and not wanting to wait any longer for things to get better. Patients' circumstances also influenced their decisions. Poor mental health, stress or isolation could make it difficult to cope with physical symptoms. Some people felt responsible for someone else, particularly children, or were advised by family or friends to attend services. People's experiences and perceptions of health services also affected their decisions; these included having difficulty getting a general practitioner appointment quickly enough and being attracted by the facilities at emergency departments.

When all of these factors were considered, patients' decisions were often understandable, even if those decisions led to 'clinically unnecessary' use. These issues could be addressed by strengthening general practice, improving public education and reducing the wider social stresses that affect people.

Scientific summary

Background

In the context of supply not matching demand, policy-makers have expressed concerns about the high levels of demand for some services that provide emergency and urgent care: emergency ambulances, emergency departments and urgent same-day general practitioner appointments. This mismatch between supply and demand has led to interest in what we term the 'clinically unnecessary' use of services. This is defined by the research team in this study as 'patients attending services with problems that are classified as suitable for treatment by a lower urgency service or self-care'; for example, problems that could be dealt with by a general practitioner rather than in an emergency department. It is a challenging issue to consider because patients may face difficulties deciding on the best action to take, and different staff may make different judgements about what constitutes a legitimate reason for service use.

Aim

The aim of the study was to identify the key factors (drivers) affecting 'clinically unnecessary' use of emergency ambulances, emergency departments and urgent same-day general practitioner appointments from patient and population perspectives.

Objectives

The study objectives were to:

1. identify the drivers of 'clinically unnecessary use' using a realist review and a qualitative interview study
2. understand how different subgroups of the population make decisions about help-seeking using a qualitative interview study
3. identify potential intervention strategies using a focus group study
4. measure the prevalence of population views of seeking urgent care, and how these views vary by circumstances, and by population subgroups, using a population survey
5. identify the characteristics of people who have a tendency to make 'clinically unnecessary' use of the ambulance service, emergency departments and general practices using vignettes within a population survey.

Design

This was a sequential mixed-methods study with three work packages: a realist review, a qualitative study of individual interviews and focus groups with three patient subgroups, and a population survey.

Methods

Realist review

We used 32 qualitative studies to develop 10 programme theories (i.e. proposed explanations of patients' behaviour). We tested these programme theories against existing health behaviour theories and evidence from 29 quantitative studies.

Qualitative interview study

We undertook interviews to explore decision-making processes with 48 patients, 16 in each of three subgroups identified as having high levels of 'clinically unnecessary' use: parents of young children, young adults and people living in areas of social deprivation. The interviewees were not aware that health professionals considered their contact 'clinically unnecessary'. We also undertook a focus group with patients from each subgroup (total $n = 15$ participants) to explore potential interventions.

Population survey

We purchased a 60-item module in the 2018 British Social Attitudes Survey with a representative sample of the British population ($n = 2906$). We explored attitudes among the population towards seeking care when faced with an 'unexpected health problem that was not life threatening', and the prevalence of the programme theories that we identified in our realist review. In addition, respondents were presented with vignettes of different health problems and asked to identify the actions that they would take. This allowed us to identify people who had a tendency to make 'clinically unnecessary' use of services and to test the realist review programme theories.

Integration

We used an adapted triangulation protocol to compare the findings from each work package. We classified explanations for service use under three broad headings: characteristics of symptoms, patients and health services.

Results

Drivers are presented separately in the following sections. These were highly interdependent and multiple drivers featured in individuals' decision-making processes.

Drivers related to symptoms

Anxiety and concern about seriousness of symptoms that required reassurance

In the review, we identified a programme theory that uncertainty about the seriousness of symptoms could cause anxiety, and a related programme theory that this anxiety could be heightened by experience or knowledge of traumatic events. This anxiety led patients to seek reassurance from services. In the interviews, varying degrees of anxiety or concern due to uncertainty about both the meaning and the seriousness of symptoms featured as a key driver in all three subgroups. Some interviewees had clearly been anxious that a symptom might be serious, whereas others had sought reassurance that their own conclusion that a symptom was not serious was correct. In the survey this anxiety explained the tendency to make 'clinically unnecessary' use of emergency ambulances (odds ratio 1.6) and general practitioners (odds ratio 2.0).

Inability to get on with daily life and need to return to normal functioning

In the review, we identified a programme theory that patients sought care urgently so that they could get back to normal and deal with responsibilities such as working or looking after children. Interviewees, particularly young adults, also discussed this issue, describing how their help-seeking was a result of both actual and anticipated detrimental effects on their functioning. In the survey, increasing numbers of the population wanted to see a doctor or nurse immediately for an unexpected health problem as the effect of the problem on their functioning increased: 9% (262/2906) if there was no detrimental effect on functioning, 29% (831/2906) if the problem was affecting sleep and 67% (1938/2906) if they could not work or look after their family.

Need for immediate symptom relief

In the review, we identified a programme theory that a perceived need for immediate pain relief affected urgent help-seeking behaviour. Interviewees extended this from pain to a range of symptoms

that drove them to contact emergency ambulances and emergency departments. Participants in the social deprivation focus group highlighted how an inability to obtain free prescriptions directly from a pharmacist could drive them to make contact with services that could provide these.

Waited long enough for things to improve

In the review, we identified a programme theory that patients sought care urgently after they had delayed seeking help from services and had used self-care until they felt that they had to seek treatment immediately. This use of self-care, and an unwillingness to delay further when things had not improved, was strongly evident in all subgroups in our interviews, and was sometimes related to frustration with their general practitioner's inability to resolve an ongoing problem.

Drivers related to patients

Inability to cope with health problems due to mental health problems, stressful lives or limited resources

In the review, we identified a programme theory that people experiencing long-term stress associated with poverty or illness could have difficulty coping with an unexpected health problem and looked for the least burdensome health-care option. Interviewees discussed stress in their lives caused by a range of factors, including long-term health problems, social isolation and difficult work or personal situations. Young adults and people living in socially deprived communities referred to the role of mental health problems, such as anxiety and depression, when seeking health care. Although not necessarily mental health service users, they struggled with mental health problems that reduced their capacity to cope with unexpected physical health problems. Young adult focus group participants emphasised that improvements in mental health services were needed to address this lack of ability to cope. The survey results showed that members of the population who felt overwhelmed when faced with a health problem were twice as likely to have a tendency to make 'clinically unnecessary' use of an emergency ambulance (odds ratio 2.2) or a general practitioner (odds ratio 1.7). Limited resources were associated with a tendency to use emergency ambulance services when 'clinically unnecessary' in terms of manual social class (odds ratio 3.0), not having a car (odds ratio 2.1) and having low health literacy (1.7). Low health literacy was also an explanation for a tendency to make 'clinically unnecessary' use of a general practitioner (odds ratio 1.3).

Fear of consequences when responsible for others

In the review, we identified a programme theory that patients sought care urgently to minimise risk when they were responsible for others, particularly vulnerable individuals. In interviews, this was a key driver for parents of young children, who were concerned that their child's health could change quickly and were aware that they were responsible for their child's well-being. Fear of consequences for young children was also evident in responses to the survey vignettes, which showed that 37–42% of the population had a tendency to make 'clinically unnecessary' choices about a sick child, compared with 1.5–30% for adult illness or injury.

Compliance with and influence of social networks

In the review, we identified a programme theory that patients followed the advice of trusted others. We discuss later how 'trusted others' can be health service staff, but here we discuss the role of social networks. Among interviewees, it was apparent that family, friends and colleagues could sometimes direct where help was sought. This was sometimes related to recursivity or learnt behaviour in that others' previous positive experiences of emergency departments could affect a patient's decision to attend an emergency department. In the survey, 56% of the population consulted family and friends when deciding whether or not, and where, to seek help.

Subgroups with greater tendency to make 'clinically unnecessary' use of services

We undertook interviews with three subgroups of people who had been identified as more likely to be 'clinically unnecessary' users: parents of young children, young adults and people from areas of

deprivation. In the survey, we identified different subgroups who had a greater tendency to make 'clinically unnecessary' use of services: men (odds ratio 1.5) and people from black, Asian and minority ethnic groups (odds ratio 1.7).

Drivers related to health services

Perceptions or experiences of different health services

In the review, we identified a programme theory that 'clinically unnecessary' use was driven by perceptions or experiences of services. One aspect of this was that patients were attracted by the emergency department as they felt they would be seen quickly, could undergo diagnostic tests such as X-rays and would receive expert help. Interviewees in all subgroups valued these attributes of emergency departments. In the survey, a preference for emergency departments because they offer quick access to tests was a key driver of the tendency to make 'clinically unnecessary' use of emergency departments (odds ratio 1.7), and 18% of the population viewed emergency department doctors as having greater expertise than general practitioners. In the focus groups, parents of young children were attracted by specialists in child health within a paediatric emergency department and wanted a similar paediatric specialism in general practice.

Another aspect of the attraction of emergency departments was related to recursivity, that is learnt behaviour. There was some evidence that patients' positive experiences of emergency departments had led them to use them again or to recommend them to family and friends. In the survey, members of the population who felt that undergoing tests validated their decision to use a service had a greater tendency to use an emergency department (odds ratio 1.5).

Another aspect of this was concerns about the quality of primary care. Some interviewees highlighted concerns about the quality of their general practitioner or the general practitioner out-of-hours service, which acted as a driver of their emergency department attendance. In the survey, although 10% of the population expressed a lack of confidence in their general practitioner, this did not explain the tendency to use emergency departments. By contrast, in all three subgroups, some interviewees who had consulted their general practitioner for their latest health problem expressed high levels of satisfaction with their general practitioner.

Lack of timely access to an appropriate general practitioner appointment

In the review, we identified a programme theory that people's use of emergency departments was sometimes driven by their frustration with lack of access to a general practitioner when they had failed to obtain an appointment in the desired timeframe or thought it unlikely that an appointment would be available. An additional issue interviewees raised was that some general practitioner appointment systems offered a problematic dichotomy of same-day/urgent appointments, which were difficult to obtain, and booked/routine appointments, which often necessitated waiting for many weeks. Focus group participants identified the need for a new intervention to simplify appointment systems and make it possible to see a general practitioner within a few days. By contrast, many of our interviewees recruited from general practice described their general practitioner as accessible, highlighting that frustration with access to general practitioner appointments was not universal.

Compliance with health service advice

In the review, we identified a programme theory that patients sometimes used ambulances and emergency departments because they were following the advice of health professionals. Interviewees had not always made the decision to call an ambulance or attend an emergency department themselves but had been directed to do so by health service staff, including general practitioners, during either face-to-face or telephone consultations.

Conclusions

'Clinically unnecessary' use of emergency and urgent care is of interest when supply fails to match demand. Patients use emergency ambulances, emergency departments and same-day general practitioner appointments when they do not need the level of clinical care provided by those services for a multitude of inter-related reasons that sometimes differ by population subgroup. Some of these reasons relate to health services in terms of difficulty accessing general practice leading to use of emergency departments, and to population-learnt behaviour relating to the positive attributes of emergency departments, rather than to patient characteristics. Social circumstances, such as having complex and stressful lives, influence help-seeking for all three services. Demand may be 'clinically unnecessary' yet completely understandable when service accessibility and patients' social circumstances are considered.

Implications for health care

In the context of demand outstripping supply for emergency and urgent care, evidence suggests that unless supply can be increased:

- There is unlikely to be a single solution to these multiple, inter-related reasons for 'clinically unnecessary' use of services. Rather, a series of solutions, undertaken concurrently, may be necessary.
- Changes to health services could reduce 'clinically unnecessary' use of emergency departments, in particular by strengthening general practice by improving access to general practitioner appointments within a few days, emergency departments undertaking fewer of the tests that validate 'clinically unnecessary' use, and increasing awareness and improving knowledge of the services offered by alternative providers.
- Patients' social circumstances play a key role in urgent help-seeking, suggesting that wider public health issues that cause stressful lives, limited resources (both financial and in terms of health literacy) and mental health problems may increase the 'clinically unnecessary' use of ambulances, emergency departments and general practitioners.

Recommendations for research (in priority order)

1. Evaluate new interventions to address 'clinically unnecessary' use of emergency ambulances and emergency departments, including interventions that strengthen capacity in primary care, change general practitioner appointment systems, reduce practices in emergency departments that encourage further 'clinically unnecessary' use, improve health literacy, improve population mental health and increase resources for some patient groups.
2. Evaluate new interventions to address 'clinically unnecessary' use of general practice, including educating people about the role of pharmacies, improving access to free prescriptions via pharmacies and improving people's confidence to self-manage minor illnesses.
3. Evaluate new interventions tailored to different population subgroups, such as education and support aimed at parents of young children.
4. Understand the drivers of 'clinically unnecessary' use among other subgroups identified in the survey, in particular men and people from black, Asian and minority ethnic groups.
5. Explore why health professionals recommend that patients make use of health services that other health professionals subsequently judge to be 'clinically unnecessary'.

Study registration

This study is registered as PROSPERO CRD42017056273.

Funding

The project was funded by the National Institute for Health Research (NIHR) Health Services and Delivery Research programme and will be published in full in *Health Services and Delivery Research*; Vol. 8, No. 15. See the NIHR Journals Library website for further project information.

Chapter 1 Background

High demand for emergency and urgent care

Internationally, policy-makers, providers of health services and researchers have expressed concerns about the high demand for emergency ambulance services and emergency departments (EDs).[1] General practice, which deals with a large proportion of patients seeking urgent care,[2] also suffers from high demand.[3,4] In England, these three services have been identified as under pressure because of both high demand and workforce challenges;[5] that is, there are problems with the supply of these services as well as with the demand for them.

Definition of 'clinically unnecessary' use of services

Researchers have often focused on demand for emergency and urgent care services from patients who do not need the clinical resources provided by, or the acuity level of, those services;[6] for example, ED attenders who could have been treated at their general practice, or patients seeking urgent appointments with their general practitioner (GP) for problems that could have been dealt with using self-care. A variety of terms have been used in reference to these patients: 'low acuity conditions',[7,8] 'medically unnecessary',[6,9] 'unnecessary use',[10] 'non-urgent',[11–14] triaged as 'low acuity',[15] 'potentially preventable use',[16] use of emergency care for 'primary care sensitive conditions'[17] and 'inappropriate users'.[18] In this report, the term 'clinically unnecessary' defines use that doctors, nurses and paramedics assess as not requiring the level or urgency of clinical care provided by their service. That is, 'clinically unnecessary' users may have clinical needs that could be dealt with by a lower-acuity service. 'Clinically unnecessary' users can also be frequent users, but these concepts differ. An individual can make 'clinically unnecessary' use of a service infrequently. The study focuses on 'clinically unnecessary' users, some of whom may also be frequent users.

'Clinically unnecessary' use: a contentious area

The concept of 'clinically unnecessary' use of health services is contentious.[19,20] Patients face a moral dilemma when help-seeking, as they may be anxious not only about taking responsibility for their health but also about being judged as wasting the time of a service.[21,22] Pope *et al.*'s[22] recent study highlights the general public's confusion about the terms 'emergency' and 'urgent', which problems fall into which category, which services are appropriate to meet them and where the boundary between the categories lies. The authors emphasise the need for clear, consistent messages from service providers around these questions, as well as a more nuanced understanding of how people and communities make decisions about service use, as key prerequisites to changing help-seeking behaviour. Additionally, individual staff judgements about what constitutes a legitimate reason for service use may vary. For example, some staff may view difficulty getting a routine appointment with a GP as a legitimate reason for using urgent care, whereas others may not.[23]

Context of supply–demand mismatch

It is also the case that judgements about the clinical necessity of demand may be shaped by the supply of services.[20] Judgements about the necessity of demand become harsher as demand outstrips supply. Indeed, the issue of 'clinically unnecessary' demand for emergency and urgent care services may been seen as relevant only if supply does not keep up with demand.

Prevalence of 'clinically unnecessary' use

The prevalence of 'clinically unnecessary' use of emergency and urgent care varies widely depending on the definition used.[14] In a systematic review,[14] the prevalence of ED use for non-urgent conditions was 37%, ranging from 8% to 62% in different studies. Another review identified a range of 5–90%.[13]

Interventions to address 'clinically unnecessary' use

Owing to widespread concern about the pressure on some emergency and urgent care services, a considerable amount of research has been undertaken to identify and test interventions to address the problem. These interventions have taken a variety of forms to target different aspects of the problem. A recent review by Van den Heede and Van de Voorde[24] of 23 systematic reviews that specifically focused on reducing ED use identified six types of intervention:

- patient education and self-management support
- strengthening primary care services (including improving GP access and providing alternative primary care options)
- pre-hospital diversion strategies, including telephone triage
- co-ordination and case management
- introducing barriers to access
- payment from patients.

Despite the large number of primary studies, the authors concluded that evidence is still insufficient for the effectiveness of any particular intervention, partly because of the heterogeneity of the research, including the health-care system context and the target population. They propose that the complexity of the problem will require a multifaceted approach, suggesting that this is likely to include the co-location of GPs and EDs, together with a well-designed and appropriately staffed telephone triage system, although this solution is not fully evidence based.

Policy-makers in England have taken an organisational intervention approach to manage the demand for emergency and urgent care services by introducing new services. Telephone advice and triage have been introduced via NHS Direct and then NHS 111 and 111 Online to address the lack of awareness among the general population about the services available and people's ability to make judgements about which service is best for their problem. Both NHS Direct and NHS 111 were shown to have had minimal impact on reducing demand for emergency services when they were piloted,[25,26] despite NHS 111 receiving 17 million calls per year. New alternatives for access to urgent care, such as walk-in centres (WICs), have been introduced to address the issue that a lack of alternatives to urgent care may increase the use of emergency services. The evidence is mixed about the impact that WICs have on the use of EDs but, even where the effect has been positive, it has been very small, and the new centres have increased the overall use of urgent care services.[27] Organisational changes under evaluation currently include co-locating GP expertise in EDs. Policy-makers have also focused on improving population self-management and understanding about where to seek help for different problems. For example, the 'Choose Well' education campaign informs people about the range of available services, including alternatives to EDs.

Research gap

This study focuses on understanding what drives 'clinically unnecessary' demand for three emergency and urgent care services currently under pressure in England. It is important to gain an in-depth understanding from patients' perspectives about why they make decisions that are judged 'clinically unnecessary' because this may help to develop interventions that reduce demand on overloaded health services.

A number of reviews have explored the reasons why people choose to use emergency and urgent care services, although some of these have not focused specifically on 'clinically unnecessary' use. Coster *et al.*'s[28] rapid review of a broad range of studies undertaken mainly in the USA and the UK focused largely on EDs and identified six reasons why people used emergency and urgent care:

- lack of access to and/or confidence in primary care
- perceptions of urgency or anxiety creating a need for reassurance
- recommendations from friends, family members or health-care professionals
- convenience, for example better opening hours or nearer to home
- patient socioeconomic factors, such as lower costs to using specific services or unavailability of transport
- perceived need for treatment and investigations available at a hospital only.

A similar set of issues was identified in Kraaijvanger's[29] recent systematic review of reasons why patients self-refer to EDs. Some overlap with Coster *et al.*'s[28] findings was also identified in Booker *et al.*'s[17] systematic review of patients' use of ambulance services for primary care-sensitive conditions. This latter review included the perspectives of health professionals and service managers as well as that of patients, and identified the following factors:

- poor physical health, including comorbidities and mental health
- personal anxiety and risk management
- health knowledge
- caregivers and bystanders encouraging use of ambulances, particularly for children
- sociodemographic and economic issues, including deprivation and lack of own transport
- poor access to primary care.

Although these systematic reviews provide valuable high-quality evidence about the overall use of high-demand emergency and urgent care services, a more detailed exploration is needed of the motivations of patients whom those services have identified as 'clinically unnecessary' users. Existing reviews focusing on this issue are limited either because they focus on a single service[17,29] or because they include health professional perspectives as well as patient perspectives.[17] Therefore, there is a need for a broader review encompassing the range of services providing emergency and urgent care that specifically explores patients' perspectives on and reasons for using these services. Realist synthesis, which focuses on the mechanisms that bring about particular outcomes and the contexts in which these processes take place, would complement recent reviews by offering a more in-depth and nuanced understanding of patients' decision-making in relation to this important issue.

Reviews show that 'clinically unnecessary' use of emergency and urgent care differs by population subgroup, although the findings are not consistent. There is a need to explore perceptions, experiences and attitudes by population subgroup. There is also a need to identify potential interventions that might address demand. Drivers and solutions may differ by subgroup, so considering different groups of 'clinically unnecessary' users may highlight interventions specific to those groups. Given that population attitudes can affect demand for emergency and urgent care, exploring these attitudes and how they differ by subgroup may improve understanding of the drivers of demand.

Conceptual framework

Three conceptual issues are relevant to this study. First, as recommended in a recent evidence review,[30] this study takes an emergency and urgent care system-wide perspective rather than focusing on demand for a single service; the focus is on emergency ambulance, EDs and general practice because these services have been identified as suffering from high demand in England. Second, the focus is on patient and population perceptions of seeking emergency and urgent care rather than on

the perspectives of health professionals or policy-makers. This is because it is important to gain an in-depth understanding of people's attitudes and behaviour in order to understand how best to address these. Third, the focus is on factors operating at micro (person, family), meso (community) and macro (nation, society) levels. Therefore, an ecological model encompassing these levels shapes the study in the context of policy, organisational and societal issues affecting people's decision-making, as well as individual behaviour.

There is no conceptual model of demand for the emergency and urgent care system as a whole. Three conceptual models focus on parts of the system. One model encapsulates demand for EDs,[31] drawing attention to the role of the 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 second model of the use of ambulance services for 'primary care sensitive conditions' is constructed as an ecological model of infrastructure, population and health professional factors.[17] A third model of the use of ambulance services recognises that the immediate factor of perceived seriousness is influenced by health status, belief in one's ability to control a situation (self-efficacy), social support and trust in the system, which, in turn, are affected by sociodemographic factors. Rational choice involves weighing up the risks against the benefits and costs of contacting a service, which can be influenced by previous experience.[32] Andersen's[33] model of health service use is also relevant here, explaining the use of all services, not simply the use of emergency and urgent care. This model highlights the three dynamics of predisposing factors (e.g. ethnicity, age and health beliefs), enabling factors (e.g. family support and access to health insurance) and both perceived and actual need for health-care services. Together, these models highlight the types and range of factors likely to affect 'clinically unnecessary' demand for emergency and urgent care.

Aim and objectives

The study aim and objectives are articulated slightly differently from in the original proposal to clarify the focus on 'clinically unnecessary' demand for three health services offering emergency and urgent care. *Appendix 1* provides the original objectives.

Aim

The aim of the study is to identify the drivers of 'clinically unnecessary' use of emergency and urgent care using patient and population perceptions.

Objectives

1. To identify the drivers of 'clinically unnecessary' use of emergency and urgent care using a realist review and qualitative interview study.
2. To understand how different subgroups of the population make decisions about help-seeking using a qualitative interview study.
3. To identify potential intervention strategies using a focus group study.
4. To measure the prevalence of attitudes to seeking urgent care, and how these vary in different circumstances, and by different subgroups of the population, using a population survey.
5. To identify the characteristics of people with a tendency to make 'clinically unnecessary' use of emergency and urgent care, using vignettes within a population survey.

Chapter 2 Overview of the study

Study design

We undertook a sequential mixed-methods study with three work packages (WPs) in the following order: a realist review (WP1), a qualitative interview study of individual interviews and focus groups with three patient subgroups (WP2) and a population survey (WP3) (*Figure 1*). Integration occurred throughout the study, with findings from WP1 identifying subgroups for studying in WP2, and findings from WP1 and WP2 informing the development of the questionnaire for WP3. Further integration of findings from different components was undertaken, and this is reported in *Chapter 7*.

Setting

The setting for the study varied by WP. The realist review was international, with attention paid to articles' geographical context to assess their relevance to England. The interview study was based in two geographical areas in England with different emergency and urgent care system configurations. The survey was of a representative sample of the British population.

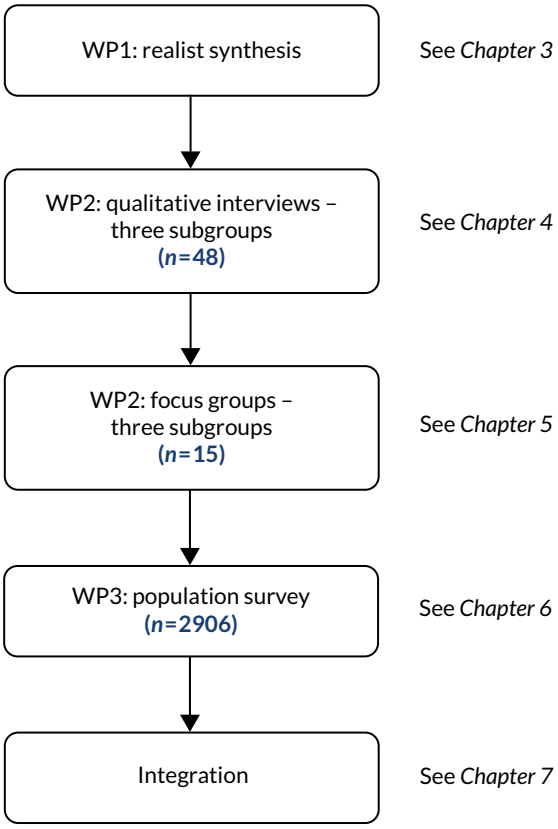

FIGURE 1 Design of the study.

Patient and public involvement

Sheffield Emergency Care Forum (SECF) is an established group of members of the public who have experience of emergency and urgent care services and who offer patient and public involvement (PPI) to research studies.[34] At the planning stage, SECF supported the focus of the study, in particular the proposed focus on the subgroups of parents with young children and young adults. They emphasised the need to avoid a judgemental stance in the research and to ensure that interviewees were not aware that they had been selected because they had been deemed to use urgent or emergency care services unnecessarily. They also recommended offering financial incentives, suggesting that participants may be hard to recruit. They were particularly interested in potential solutions, and raised the importance of education at school about how to make best use of health services.

During the study, three SECF members and co-authors of the report (LA, SB and EH) attended Project Management Group meetings and commented on the evolving findings. Sometimes additional SECF members attended these meetings when we were presenting detailed findings. Two SECF representatives (Alice Riddell and Beryl Darlison) were members of the Project Advisory Group. Members of the Project Management Group and the Project Advisory Group were invited to comment on the draft report and Scientific summary, respectively, and two members (SB and LA) were involved in drafting the Plain English summary.

Patient and public involvement members (LA and SB) contributed to the development of the topic guide and to the interpretation of qualitative data in WP2, via management group meetings and ad hoc meetings specifically to discuss emerging findings. We held a large PPI event with members of the wider public to consider the draft survey in WP3. We report details of this event in *Chapter 6*.

Patient and public involvement members were reimbursed in payment or vouchers in recognition of their contribution.

Overall, PPI members provided invaluable input into the study. All of those who were part of the SECF had experience of being involved in research and were confident in contributing to discussions and providing feedback on written materials. The wider PPI event we held as part of the questionnaire development for WP3 drew on a more diverse group, including members of the public with no previous experience of research. The success of this event means that we are likely to hold more PPI events of this type in the future.

Project Advisory Group

A Project Advisory Group was convened whose members had operational roles in general practice, the ED or the ambulance service (Philip Foster, Matthew Booker, Kirsten Clinton and Andrew Hodge), a commissioning role (Daniel Mason) or expert knowledge of the emergency and urgent care system (Matthew Cooke), or were service users themselves (Alice Riddell and Beryl Darlison). The group was chaired by Matthew Cooke and met four times during the study.

Ethics approval: interviews and national survey

The realist review (WP1) did not require ethics approval. Ethics approval was sought for the qualitative interview study (WP2) and this was obtained from London – Brent REC (reference 14/LO/1228). The population survey (WP3) was conducted by the National Centre for Social Research (NatCen) (London, UK), which obtained ethics approval through its standard procedures.

Chapter 3 Realist review

Aim and objectives

The aim of this review was to use realist synthesis to identify patients' perspectives on why they make what is judged to be 'clinically unnecessary' use of emergency and urgent care services. The objectives were to identify:

1. programme theories to explain 'clinically unnecessary' use of three emergency and urgent care services
2. subgroups of the population about whom more research is needed
3. interventions recommended by researchers.

Methods

Realist synthesis

Realist synthesis was chosen because it enables an understanding of complex social programmes that involve human decisions and actions.[35] Although generally used to explore interventions and how their outcomes are achieved, realist reviews have been used to study other issues, such as access to care.[36,37] Therefore, 'clinically unnecessary' use of emergency and urgent care services was considered an appropriate topic for a realist review.

The review had two phases. In the first phase, we developed and refined a set of programme theories (or proposed explanations of patients' behaviour) that were based on published qualitative research of patients' perspectives on why they use emergency and urgent care services for reasons judged to be 'clinically unnecessary'. We had initially intended to draw on multiple types of information, as is common in realist reviews,[35] but as the intention of the review was to develop programme theories that were grounded in in-depth patients' perspectives, we decided to change this approach and to focus only on qualitative journal articles reporting patients' perspectives. The development of the programme theories was also informed by discussions with our Project Management Group. In the second phase of the review, we tested the programme theories in two ways:

1. Using existing theories of health behaviour, in particular health decision-making, to gain a more in-depth understanding of how these related to this extensive wider literature.
2. Identifying any existing quantitative research that could support or refute these theories.

We registered the proposal with PROSPERO 2017: CRD42017056273. We used the RAMESES (Realist and Meta-narrative Evidence Syntheses: Evolving Standards) reporting guidelines.[35]

Phase 1: developing and refining the programme theories

The review question and initial theoretical framework

We focused on three services: emergency ambulance, EDs and general practice. The research question was 'What are patients' perspectives of why they make use of services providing emergency and urgent care that is judged subsequently by health professionals to be "clinically unnecessary"?'.

Realist synthesis allows the initial theoretical framework or rough programme theories to be identified in different ways.[38] Coster *et al.*'s[28] recent review of the demand for emergency and urgent care offered a set of potential rough programme theories, but it was based on qualitative and quantitative research of all users of a range of emergency and urgent care services. Because this did not focus solely on those patients who were judged to have made 'clinically unnecessary' use of services, we decided not to use these theories as the basis for developing our programme theories, but rather as a theoretical framework to guide our exploration.

Identifying and selecting primary studies for inclusion

Although we could have identified our literature through database searches, we decided not to do this as we were aware of a number of high-quality reviews of demand for emergency and urgent care that were likely to include the literature we were seeking. We therefore selected three recently published, complementary reviews that were likely to contain relevant articles about emergency ambulance service demand,[17] ED demand[29] and emergency and urgent care,[28,30] together with one ongoing review by a member of our team (Joanne Turnbull).[39] These reviews focused on demand for emergency and urgent care generally, self-referred ED users or the use of ambulance services for 'primary care sensitive conditions'. We identified the studies in these four reviews and requested copies of the articles from their lead authors. In addition, in February 2017 we updated these searches by using MEDLINE and Google Scholar™ (Google, Inc., Mountain View, CA, USA) to identify material published during 2015 and 2016. Finally, because of a lack of articles identified that focused on 'clinically unnecessary' use of same-day GP appointments, in April 2017 we undertook specific searches in MEDLINE and Google Scholar for relevant general practice-focused studies from the start of each database to March 2017. All articles were in English as this was an inclusion criterion of the four reviews, and we applied this to the updated searches. All countries were included. *Figure 2* summarises the search processes and the selection of studies, and *Appendix 2* provides the search strategies.

Quality appraisal

The nature of realist reviews means that the formal quality assessment process that is associated with other review types is not used.[35] The study proposal outlined our intention to assess the relevance, context and methodological rigour of potential literature. As part of this process, the relevance of all literature identified from the reviews and additional searches was appraised and we included only literature related to 'clinically unnecessary' use of our three services. We identified studies as relevant if they focused on 'appropriate use of services', 'non-urgent ED users', 'ED users who could be managed in alternative urgent care services', 'ambulance users or ED users with primary care conditions' or 'service use for minor disorders/ailments', or when it was established in the paper that a group made high levels of contact with a service when they could have used alternative services (e.g. 'use of out-of-hours services for febrile child'). For the qualitative evidence, we then undertook an assessment of how well the context of each included study was reported (see *Appendix 3*, *Table 15*) and assessed the study's methodological rigour using the Critical Appraisal Skills Programme (see *Appendix 4*, *Table 16*).[40] We had initially stated that we would exclude studies based on the detail of their reporting of context but not on rigour, but we later decided not to exclude for either reason to ensure that all relevant literature was included. Poorly described context and low methodological rigour tended to coincide, and we took account of these issues in the analysis so that programme theories were not based solely on poorer-quality articles.

Data extraction

For the qualitative evidence, each article identified in the first search iteration was coded by context (year, country, service and type of user, e.g. not clinically necessary, common user, frequent user) and subgroup (e.g. young adults). We also identified key themes, which are reported in *Appendix 5*, *Table 17*. We then identified provisional context (C) and mechanism (M) chains for the outcome (O) of using a higher-acuity service than was considered clinically necessary. We defined the mechanism as the trigger for or driver of the decision, which arose from an ongoing situation that we defined as the context. As has been found in other realist reviews, it was often difficult to distinguish context from mechanism[41,42] because of the multiple mechanisms operating that were often contexts for further

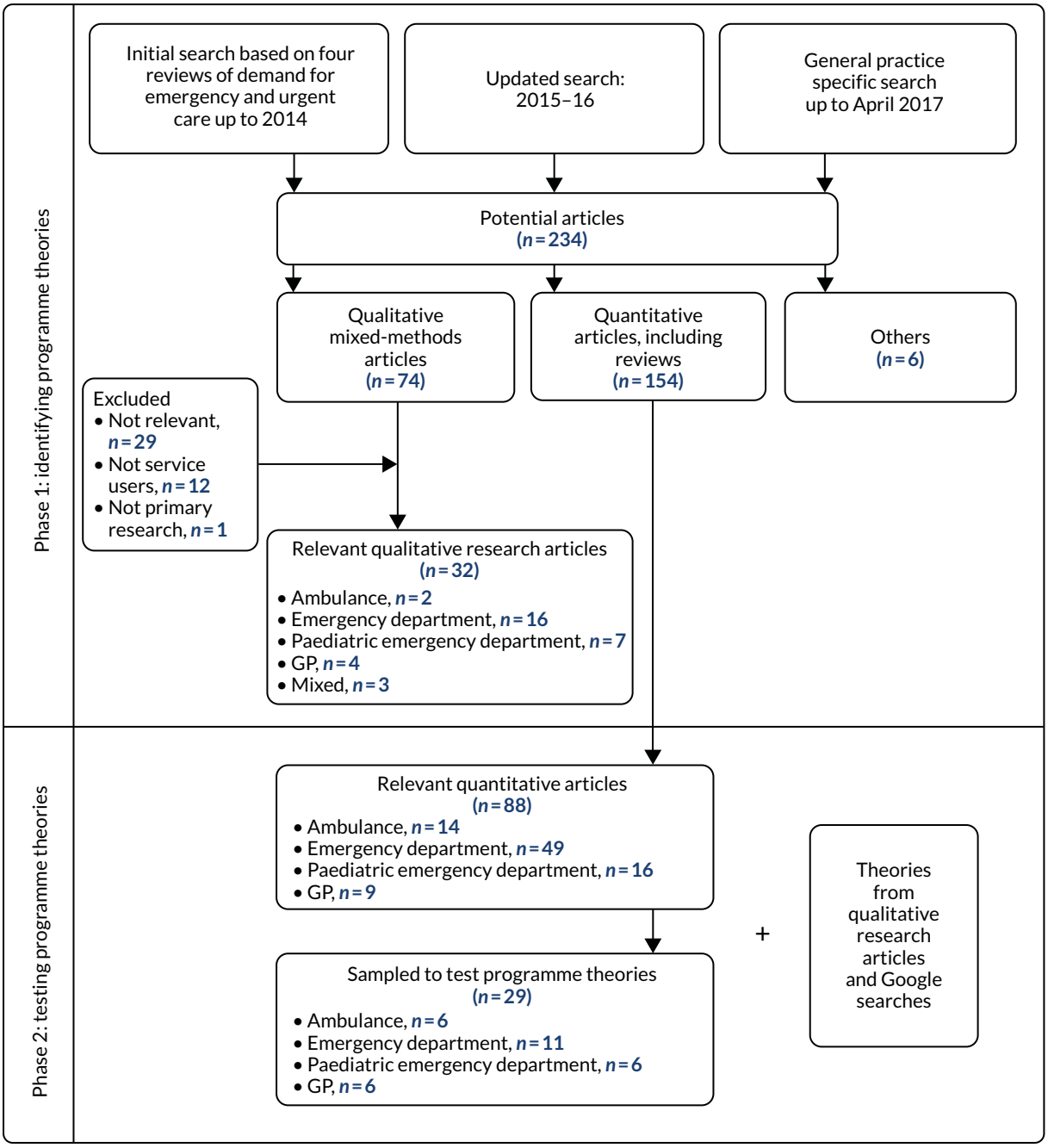

FIGURE 2 Summary of search processes and selection and extraction of articles.

mechanisms. In the early stages of the process, we undertook duplicate data extraction of some articles and discussed context–mechanism–outcome chains and potential programme theories among our team (JCon, JCos, JL and AOC). We supported the findings with direct quotations from participants in the included studies.

Developing and refining programme theories

During team discussions, we sought to identify chains of inference and connections across the data. Our initial proposal stated that we would identify between three and six rough programme theories to refine and test, but as the review progressed we decided to retain all of the programme theories we identified, as we considered them to be of equal importance and too inter-related for any to be appropriately excluded. We had multiple long team discussions (JCon, JL, JCos and AOC), as well as

further discussion with the wider team and PPI members in the Project Management Group, to refine the context–mechanism–outcome chains until we had finalised 10 detailed programme theories. We further developed our understanding by focusing on what created an urgent need to contact a service within each programme theory, and developed six mechanisms across the 10 programme theories to account for this urgency. We presented the programme theories at a conference and to our Project Advisory Group for external validation.

Phase 2: testing the programme theories

In parallel with the development and refinement of the programme theories, in September 2017 Jaqui Long and Alicia O'Cathain began searching for existing theories and conceptual models that were applicable to our work using two approaches. Where our included articles referred directly to relevant theoretical work, these references were followed up by Jaqui Long, who then identified further literature around this theory or model, particularly any research applying it to 'clinically unnecessary' use of emergency and urgent care. This approach was used in relation to perceptions of risk, coping under stress and perceptions of service provision. When our literature contained no or few references to theoretical material related to an evolving programme theory (fear or anxiety, uncertainty, influence of family and friends), Alicia O'Cathain and Jaqui Long undertook Google searches to identify relevant literature. As part of these searches, a key article was identified[43] that integrated three existing theories of how people respond to symptoms to create a new model to understand health-related help-seeking behaviour.

In addition to testing the programme theories in relation to existing theoretical material, we explored the relationship of these theories to relevant quantitative research. In September 2018, Alicia O'Cathain reviewed the quantitative material from the original searches and purposively sampled recent articles focusing on 'clinically unnecessary' use of different health services as follows: ambulance (6/14 articles), EDs (11/49), paediatric use of EDs (6/16), and general practice, predominantly GP out-of-hours services (6/9). These articles were read to identify evidence that supported or refuted the programme theories. The evidence was found to consist mostly of cross-sectional surveys of service users labelled 'clinically unnecessary'. There was little research comparing 'clinically unnecessary' users with clinically necessary users, which might have enabled us to distinguish the mechanisms and contexts associated with 'clinically unnecessary' use. Even those articles that did explore these differences tested only a limited number of variables that were generally not related to our programme theories. Therefore, this process highlighted significant gaps in the quantitative evidence.

Findings

Programme theories

Description of the qualitative evidence base

We included 32 qualitative articles in the review and rated their relevance to the research question. Eighteen were rated 1, directly relevant, and 14 were rated 2, partially relevant (see *Appendix 3*, *Table 15*, for details of the relevance ratings). Articles predominantly focused on EDs, either adult/mixed ($n = 16$) or specialist paediatric ($n = 7$). Only four studies focused on GP out-of-hours services and two focused on emergency ambulance services. No studies considered daytime general practice. Most articles were from the USA ($n = 12$) or the UK ($n = 10$), with others from continental Europe ($n = 5$), Australia, Canada and the Caribbean. Almost all were from high-income countries, although some explored the perspectives of communities with high levels of deprivation in those countries. The health-care context varied widely between countries, particularly in relation to how patients paid for services.

Mechanisms and programme theories

An overview of our six underlying mechanisms and 10 inter-related programme theories for seeking 'clinically unnecessary' emergency and urgent care, together with their potential relevance to particular subgroups, is shown in *Table 1*.

Testing the programme theories

There was considerable support for all of the programme theories from existing theories. Only some of the programme theories were supported by quantitative research, and this was largely from cross-sectional quantitative studies rather than comparative studies (*Table 2*).

TABLE 1 The 10 programme theories

Underlying mechanism for urgency	PT label	PT detail	Subgroups most relevant to
Risk minimisation	1, uncertainty about symptoms causing anxiety	When there is uncertainty about symptoms (M) because they do not fit with people's expectations or experience (e.g. they last longer, are more severe, are unfamiliar or do not respond to self-care in the expected time scale) (C/M), this increases the perception that the problem may be serious (M) and results in an immediate need to establish what is wrong and receive reassurance (M). This concern prompts the use of the ED (O), where it is perceived that the most appropriate resources and expertise required to establish cause can be accessed quickly (C), often in the context of a lack of timely or satisfactory answers from primary care services (C)	
	2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety	When people have experienced traumatic health incidents (e.g. delayed help-seeking leading to serious consequences) or are aware of such incidents experienced by others or reported in the media (C), they have increased anxiety and awareness of danger (C/M) and reduced confidence in their own judgement (M). They are therefore unwilling to take risks when a health problem arises (M), leading them to seek immediate help and advice from an expert in the form of emergency care, including ambulance services and EDs (O)	

continued

TABLE 1 The 10 programme theories (*continued*)

Underlying mechanism for urgency	PT label	PT detail	Subgroups most relevant to
	3, fear of consequences when responsible for others	When people are in a position of responsibility for someone else, they are less willing to take risks with that person's health than with their own, and they fear the consequences (e.g. distress/guilt, dismissal, litigation) (M) of not doing 'the right thing'. This leads them to seek or to recommend seeking urgent care, particularly at the ED (O)	Parents, carers of vulnerable elderly people, people with chronic conditions, health service or other service professionals (e.g. teachers)
Need for speed	4, inability to get on with daily life	When people are prevented from undertaking their normal lives, roles or responsibilities (e.g. paid work, childcare) (C), this creates a need to get back to normal quickly (M) and to get on with their lives and discharge their responsibilities. This prompts their use of urgent care (O) because it can resolve a problem quickly by being both more accessible and more efficient than alternatives (C)	Parents of young children, people working in jobs who cannot afford or find it difficult to take time off
	5, need for immediate pain relief	When people are in pain or discomfort that they find intolerable (C/M), and they believe or have experienced that no primary care appointments are available within an acceptable time (C), they seek care from a more urgent service – usually the ED (O) – because of a need to obtain prompt relief from their distress (M)	
	6, waited long enough for things to improve	When people delay seeking primary care treatment (for various reasons including deliberation and indecision, cost of treatment, lack of transport, complex living situations, mistrust of health services and work responsibilities) (C), they wait, often while using self-help measures, and hope the situation will improve or resolve (C). The condition reaches a 'tipping point' where either it is no longer tolerable (M) or other circumstances force a decision (M), and people feel that they cannot wait any longer (M). At this point, if a primary care service is unavailable to them (C), they feel they have no choice but to use an emergency service (O)	

TABLE 1 The 10 programme theories (*continued*)

Underlying mechanism for urgency	PT label	PT detail	Subgroups most relevant to
Low effort required for help-seeking	7, stressful lives/cannot cope	When people are already experiencing significant stresses that have an impact on the internal and external resources available to them (e.g. money, time) (C), they have less capacity to cope with the additional challenge of a new or changed health problem. Symptoms are therefore likely to trigger emotional distress, including feelings of loss of control and helplessness (M), leading them to use emergency services because this is less burdensome than making an appointment with a GP. This is more likely to occur when people cannot easily or quickly access a primary care service (C)	People with low socioeconomic status, parents, people who are isolated, people with demanding work, people with mental health problems
Compliance	8, following advice of trusted others	When people are anxious or concerned about a health problem and have sought the advice of trusted others (C) – either those in their social network (e.g. family) or health professionals (particularly primary care staff) – and have been advised to seek urgent care, particularly the ED (M), they are likely to then use those emergency services (O)	
Availability and quality of care	9, perceptions or prior experiences of services	When people have individual experience or knowledge, or cultural beliefs, about the differing quality or availability of primary and emergency services, such as primary care offering inadequate diagnosis and care or discrimination (US context only), or EDs having better resources, expertise or more thorough care (C), they are likely to choose emergency care, particularly the ED (O), in which they have more trust and confidence (M)	People previously referred to emergency services by primary care staff, parents of young children, people with chronic conditions
Frustration with access to GP	10, poor access to a GP	When people are unable to obtain an appointment with a primary care practitioner (C/M), this can further exacerbate feelings of anxiety and cause panic (M). Individuals can experience frustration (M), mistrust (M) and the perception of an uncaring service (M), feeling that they have no choice (M) but to contact an emergency service (O)	

PT, programme theory.

TABLE 2 Evidence for programme theories

PT	Evidence from qualitative papers	Links to existing theories/models	Evidence from quantitative papers
1, uncertainty about symptoms causing anxiety: 'I am worried because I do not know what is wrong'	[7,44–57]	Leventhal *et al.*:[58] common sense model Mishel and Braden:[59] role of uncertainty in decision-making	Cross-sectional surveys of ED and GP OOH service users showed that some, but not all, were worried or anxious or thought that they had a serious problem[60–64]
2, heightened awareness of risk as a result of experience/ knowledge of traumatic health events leading to anxiety: 'After what happened before I daren't risk it'	[44,47,49,51–53,57,65–69]	Leventhal *et al.*:[58] common sense model Beck:[70] risk society Pescosolido:[71] network episode model	–
3, fear of consequences when responsible for others: 'In my position, it's better to be safe than sorry'	[45,46,49,50,52,53,57,72,73]	Leventhal *et al.*:[58] common sense model Beck: risk society[70] Dixon-Woods *et al.*:[74] candidacy Dingwall and Murray:[75] categorisation of patients	There was little evidence, only a related issue of autistic children having higher rates of non-urgent use of EDs[76]
4, inability to get on with daily life: 'I need to get back to normal'	[56,77]	Dingwall:[78] illness action model Leventhal *et al.*:[58] common sense model Zola:[79] pathways to the doctor Beck:[70] risk society	This issue was not addressed explicitly but may have been described as using services for convenience[80]
5, need for immediate pain relief: 'It's urgent because it hurts'	[7,45,50,55,56,65,68,77,81–84]	Leventhal *et al.*:[58] common sense model Andersen:[33] behavioural model of health-care utilisation Beck:[70] risk society	–
6, waited long enough for things to improve: 'I can't delay this any longer, I need to deal with it now'	[7,48,51,54,55,65,67,72,77,81–85]	Andersen:[33] behavioural model of health-care utilisation Leventhal *et al.*:[58] common sense model Mishel and Braden:[59] role of uncertainty in decision-making Zola: pathways to the doctor[79]	Cross-sectional studies showed that people delayed attending services and tried to self-manage problems, and that duration of symptoms was an issue for ED users. Users of ED and GP OOH services had used over-the-counter remedies beforehand. In a comparative study, medically unnecessary users of GP OOH had longer-lasting problems than medically necessary users[8,60–62,64,80,86–88]

TABLE 2 Evidence for programme theories (*continued*)

PT	Evidence from qualitative papers	Links to existing theories/models	Evidence from quantitative papers
7, stressful lives: 'I just can't cope with the illness or making an appointment'	[47,49,52,55,66,67,69,73,77,81,83,84]	Andersen:[33] behavioural model of health-care utilisation Antonovsky and Sagy:[89] sense of coherence/ generalised resistance resources Dixon-Woods *et al.*:[74] candidacy Mishel and Braden:[59] role of uncertainty in decision-making	People arriving at EDs by ambulance and classed as non-urgent were more likely to be homeless and to have mental health problems. People who were more likely to use an ambulance in a hypothetical situation that did not require an ambulance had no car or lived alone[6,61,90] Against: one review concluded there was little evidence of an association between coping mechanisms and the use of EDs, and another concluded that affluent groups were more likely to use EDs for minor problems[14,86]
8, following advice of trusted others: 'That's what they said to do, and they know better than me'	[45–51,54–56,66,68,73,77,82,91,92]	Pescosolido:[71] network episode model Leventhal *et al.*:[58] common sense model Andersen:[33] behavioural model of health-care utilisation Dixon-Woods *et al.*:[74] candidacy	Cross-sectional studies showed that people followed the advice of family friends and health professionals when attending EDs. It was common to follow instructions from primary care staff, with at least one-quarter of ED users referred to an ED by a GP[12,14,60–62,64,93]
9, perceptions or prior experiences of services: 'I'll get a better and faster service from the hospital/ambulance'	[7,45,46,49,50,54,55,57,66–68,72,73, 81–85,91,92,94]	Rogers and Nicolaas:[95] recursivity Andersen:[33] behavioural model of health-care utilisation Zimmerman:[96] multilevel theory of population health Nilsen *et al.*:[97] role of habit Dixon-Woods *et al.*:[74] candidacy Pescosolido:[71] network episode model	Cross-sectional studies showed the attraction of the tests available and the quality of care at EDs, as well as the ease of getting tests and treatments and the preference for a specialist within paediatric EDs. Concerns about poor-quality general practice were related largely to a lack of tests, such as X-rays, and accessibility[8,10,12,15,60,62,86,93]
10, poor access to a GP: 'I can't get an appointment quickly enough'	[7,45,49,50,56,57,65,66,68,72,73,77, 81,91,98]	Andersen:[33] behavioural model of health-care utilisation	Cross-sectional studies showed that perceived or actual difficulty accessing a GP in the time frame required by patients affected their use of EDs and GP OOH services. Lack of access was sometimes because of the time of day, when primary care was closed. In some studies, a sizeable minority of patients had attempted to contact the GP before going to an ED[8,10,12,14,15,62,80,86–88,99–101]

OOH, out of hours; PT, programme theory.

Population subgroups

The programme theories based on qualitative research were particularly relevant to parents of young children, carers, people living with chronic conditions and people leading complex or stressful lives in terms of experiencing isolation or mental health problems. However, the qualitative research focused explicitly on parents of young children only. We also read systematic reviews and quantitative articles in the review and found subgroups highlighted as more likely to be 'clinically unnecessary' users. However, we were concerned about this evidence base because it sometimes identified the characteristics of a cross-sectional study of 'clinically unnecessary' users (which may have simply corresponded to the characteristics of users) and less commonly compared 'clinically unnecessary' with clinically necessary users, and the results were not always consistent. There was some evidence that the following subgroups were more likely to be 'clinically unnecessary' users: men, people born outside the country of study, people living in areas of deprivation, people with some clinical complaints, people living a short distance from an ED, children, adults aged < 40 years and older people.

Recommended interventions to address 'clinically unnecessary' use of services

Jaqui Long reviewed the included qualitative articles to identify and extract specific recommendations or observations about interventions to address 'clinically unnecessary' use of services. We focused on the qualitative literature to ensure that the recommended interventions were based on an in-depth understanding of patients' decision-making processes. Almost all of the papers contained relevant information, with only three making no specific comment about potential interventions. We inductively identified seven broad categories of interventions (*Table 3*). All of the recommendations came from the articles' authors rather than from the study participants.

TABLE 3 Summary of recommended interventions within qualitative articles in the review

Category[a]	Examples	Articles
Provide patient education about management of health problems and service use	Clear, consistent advice from health professionals and through public education about self-care, managing non-urgent problems and preventing exacerbations of existing conditions Prior agreement between GPs and patients on how to respond to particular acute problems Education on use of services: what is an emergency Education about the capacity and scope of different services Education about the benefits of continuity of care Promotion of services available through primary care	48–50,52,54–56,66,68,72,73,81–84,98
Recognise the influence of personal and social context on decision-making	Acknowledge and understand the impact of the following on people's perceptions of a situation and their choice of service, and provide support to overcome barriers where possible: • anxiety/emotion – can over-ride 'rational' knowledge • gap between an individual's conception of an emergency and their own problem – meaning of symptoms • social deprivation, complex lives, isolation, long-term health problems – impacts on priorities and choices • cultural/social norms and beliefs about health and services • prior positive/negative experiences of services or health-care system as a whole • health professionals' attitudes – create anxiety, fear of criticism/blame for inappropriate use or failure to use services, lack of confidence in self-managing • limited English language – avoidance of telephone booking and consultation	7,44,48,50–53,55,67–69,73,77,83,85,98

TABLE 3 Summary of recommended interventions within qualitative articles in the review (*continued*)

Category[a]	Examples	Articles
Improve primary care provision, including OOH support	Improved quality and efficiency of services	47,49,50,55,56,66,67,72,83,84,91,92,94,98
	Simplified appointments system	
	Extended hours/OOH clinics	
	Open access	
	Fast-track option for urgent problems	
	OOH telephone service	
	Internet/e-mail access	
	Wider range of services and tests	
	More co-ordination of care: access to specialist staff	
Make changes to the structure of care provision in ED	Locate ED and primary care on the same site	7,49,50,54,69,77,91,92
	Introduce fast track within ED	
	Provide specialist open-access clinics for managing exacerbations of long-term conditions (e.g. asthma)	
	Triage non-urgent patients to community resources/appointments	
	Treatment of minor injuries/illnesses by nurse advisers	
	Provide advocates/social workers for vulnerable patients	
	Provide specialist co-ordinated care for frequent attenders with multiple problems	
Improve the relationship between primary care and patients	Address negative attitudes and behaviour of staff to improve patient experience	50,66,67,83,84,98
	Improve communication regarding appointment systems	
	Involve/collaborate with patients in service design	
	Support self-management and build confidence	
	Provide support for vulnerable patients to navigate and access services (e.g. those with low literacy, deprivation, poor health)	
New/alternative patterns of care provision in the community	Integrate services to assess and manage urgent problems in the community/at home	49,72,84,91
	Provide more urgent care away from ED, including for pain, minor trauma and children's minor illnesses	
	Provide a nurse-staffed telephone line for non-urgent callers to emergency ambulance service	
Reduce primary care referral to ED	Educate primary care staff on when to refer patients to the ED (only in papers published in USA)	47,66,91

OOH, out of hours.
a Ordered by number of articles referring to an intervention.

Discussion

Summary of findings

Using qualitative research that was focused largely on EDs, we identified 10 inter-related programme theories to explain why patients make 'clinically unnecessary' use of emergency and urgent care. These included programme theories related to symptoms (e.g. anxiety due to uncertainty about the seriousness of symptoms), patients (e.g. need for low treatment-seeking burden, caused by an inability to cope as a result of complex or stressful lives) and services (e.g. EDs were perceived to offer the desired tests and expertise when contrasted with primary care, services directed patients to EDs). Multiple mechanisms could operate for an individual. There was considerable support for these programme theories from existing theories of health behaviour but little quantitative evidence of the programme theories operating more in 'clinically unnecessary' users than in clinically necessary users.

Links to existing literature

Some of our programme theories aligned with the findings in the original reviews from which we identified our studies. There were clear links to the following ideas: uncertainty causing anxiety and a need to obtain reassurance to manage risk;[17,28,29] a fear of consequences, particularly in relation to children and ambulance use;[17] the role of stress and social deprivation in driving a need for ease of access to care;[17] the influence of others, including professionals, on people's service use;[17,28,29] and consumer satisfaction, expressed positively in relation to EDs offering a range of tests and interventions in one place[17,28,29] and negatively in relation to a lack of confidence in GPs[28,29] or frustration with a lack of access to primary care.[17,28,29] Wider research on the demand for emergency and urgent care also supported some of the programme theories, in particular highlighting how poor access to GPs is associated with higher use of EDs for all emergency and urgent care, not just that considered 'clinically unnecessary'. This link has been identified in numerous studies, including a large-scale survey of GP patients in 34 countries.[102]

The realist review also identified some programme theories that were not evident in the original reviews. In particular, we highlighted the influence of the following on people's decision-making: the role of previous traumatic health events in increasing anxiety, the need for immediate relief of intolerable pain, the concern about returning to normal to fulfil responsibilities such as work or child care, and the sense of a 'tipping point' triggering a need for urgent care following a period of self-imposed delay.

Our programme theories did not include a number of issues that were highlighted in other reviews (including our original four) or quantitative research into 'clinically unnecessary' use. These issues included convenience in terms of a shorter journey to a particular service;[12,15,29,63,103] awareness of services;[12,87] health knowledge;[17] misunderstanding of the role of a service;[19,88] differences between urban and rural settings;[80] lack of a GP;[88] a desire to take control;[19] and financial considerations discussed within the US literature.[29] As these issues did not feature strongly within our included qualitative literature, they did not form part of our programme theories. We also did not develop a programme theory around the role of convenience in patients' decisions to use emergency and urgent care, a key issue identified in other research.[14,28,29,62,93]

Strengths and limitations

The lengthy and careful process used by the team to develop and refine the programme theories is a key strength of our study. The specific focus on qualitative research ensured that these theories were grounded in patients' views and experiences. Linking our programme theories, developed in relation to a particular context of service use, to existing wider theories of health behaviour, also strengthens the review and its findings. The use of a realist approach enabled us to identify similar findings to previous research, but to significantly extend and deepen them by exploring the reasons behind the findings; for example, it confirmed the importance of anxiety, but also identified why people felt anxious. In addition to supporting existing findings, the review identified new issues driving people's help-seeking, such as a need for immediate pain relief and the impact of previous traumatic experiences.

The review had some limitations. First, the included articles focused largely on the use of EDs. Second, the programme theories are based on qualitative interviews with patients who may have been concerned about portraying themselves as responsible and appropriate users of services.[20] However, even if this was the case, it is important to understand these representations, and we provide valuable insights into how patients describe their decision-making. Third, the included studies used a wide variety of definitions of 'clinically unnecessary' or 'non-urgent' in their recruitment of participants, and, therefore, our programme theories have not been developed in relation to a consistently defined group, as is the case in other reviews. Fourth, the included studies did not always provide enough detail to give an insight into the interaction of different issues within individuals, or where this particular service use was located in an individual's overall help-seeking journey (e.g. whether or not they had tried other options). Fifth, the age of many of the included studies meant that very few references were made to online health-care advice, which is being used increasingly as a help-seeking strategy. Finally, our ability to test the programme theories against the quantitative literature was constrained by the limitations of this material, as it frequently did not necessarily measure issues or variables relevant to our findings.

Implications

Our findings highlight how the use of emergency and urgent services that is deemed 'clinically unnecessary' may be considered reasonable once details of a patient's situation are fully taken into account. This conclusion of behaviour being rational was also reached in some of the research included in our review.[7,55,62,104] If patients are in fact generally acting rationally, this implies that interventions need to focus on educating policy-makers and service providers to better understand patients' decision-making processes. For example, although a clinician may consider that a patient who has had symptoms for some weeks does not require urgent care, it is important to understand that it is precisely this duration that leads the patient to perceive that the situation is urgent. However, although a better understanding may change clinicians' judgements, it is important to recognise the wider context of demand outstripping supply in many services. In addition to the 'individual patient perspective', there is a need to consider interventions with a view to ensuring that services are sustainable in the future.

The review highlights the importance of the impact of social circumstances on people's ability to cope with even minor health problems. Interventions to bring about changes in service use by people in such circumstances may require wide public health approaches, including reductions in poverty, improvements to child-care support and changes in workplaces to reduce the stress caused by being unable, or feeling unable, to take time off work to seek health care.

An implication for further research is the need to compare the drivers identified here for 'clinically unnecessary' users and clinically necessary users to identify the size of effect of these drivers and their variation in different population subgroups.

Implications for work packages 2 and 3

Our review contributed to the selection of subgroups for WP2 (see *Chapter 4*).

Although data collection and early analysis of the interviews in WP2 was not directly informed by the findings from WP1, later analysis explored the relationship of the 10 programme theories to the experiences described by interviewees, including the number and patterns of programme theories present and any refinements of or challenges to them (see *Chapter 4*, *Methods*).

We tested the programme theories in the WP3 survey, including at least one item in the questionnaire relating to each programme theory.

Chapter 4 Qualitative interview study of decision-making with three subgroups of the population

Introduction

In the WP1 review, we identified that there have been many qualitative studies of 'clinically unnecessary' users of EDs, but not many studies that focused on users of emergency ambulances or same-day GP appointments. Some of the studies identified were not based on in-depth qualitative analyses. In addition, given that drivers may differ by subgroup, not much of the qualitative research focused on specific subgroups. We concluded that further qualitative research was needed that explored patients' decision-making processes in depth, including their use of these three services, and that focused on specific subgroups.

Aim

The aim was to identify the drivers of 'clinically unnecessary' use of emergency ambulances, EDs and general practice by different subgroups of the population.

Methods

Selecting subgroups

We planned to select the subgroups using the following criteria:

- those more likely to be 'clinically unnecessary' users based on the literature
- those more likely to be 'clinically unnecessary' users based on the views of our Project Advisory Group
- those on whom a lack of qualitative research has been undertaken.

To identify potential subgroups, Emma Knowles and Alicia O'Cathain read reviews and quantitative papers from the WP1 literature. Articles reported sociodemographic status (age, sex, ethnicity, relationship status), socioeconomic status (income, education level, employment status, housing tenure), presenting clinical complaint, health-care utilisation (registered with a GP, prior use of care, attendance by day/time, arrival mode) and distance to care. The findings from the literature were sometimes inconsistent, so we used them to identify a list of candidate subgroups to be discussed with our Project Advisory Group. Following consideration of the candidate subgroups, the group identified the following as of interest to them: people of Eastern European origin, individuals living in socially deprived areas, ambulatory ED patients, parents with young families, young adults and care home residents. We decided not to focus on Eastern European people, as an ongoing study was focusing on their help-seeking behaviour relating to urgent care services such as WICs,[22] ambulatory ED patients, because we were interested in three services rather than EDs only, or care home residents, because the decision to seek care was likely to be taken by a third party rather than the patient. The Project Advisory Group members strongly supported focusing on people from socially deprived areas and parents of young children. They identified young adults as an interesting group to study because they viewed this group as accessing care for convenience. Some relevant qualitative research had been undertaken on these subgroups, particularly on parents of young children, but this had been undertaken largely outside the UK.

We decided that our qualitative research should focus on the following three subgroups.

1. Young adults: people aged 18–25 years (later expanded to 18–30 years). Reviews in WP1 identified that younger adults were more likely to be 'clinically unnecessary' users of EDs,[13,14,86] and a study of medically unnecessary GP out-of-hours users showed that they were more likely to be aged 25–44 years.[88] This choice of subgroup was supported later in our study, when a UK-based research study was published showing that those aged 16–44 were more likely to use EDs for non-urgent reasons[105] and a media study identified young people aged 18–29 as more likely than older working-age groups to use EDs and less likely to visit their GP.[106] None of the qualitative research identified in our WP1 review had focused on this subgroup.
2. Socially deprived: people residing in postcodes with an Index of Multiple Deprivation (IMD) score of ≤ 3. Reviews in WP1 identified that use of ambulance services for non-urgent conditions was higher in deprived areas[17] and that people from deprived communities may prefer to access EDs rather than GPs.[28] A review of 'clinically unnecessary' use of EDs agreed with this,[14] but two other reviews identified that affluent groups were more likely to be 'clinically unnecessary' users of EDs.[13,86] Although the evidence was conflicting, our Project Advisory Group members also identified those who are socially deprived as 'clinically unnecessary' users. A few of our qualitative articles in WP1 focused on this subgroup, but these were mainly US based.
3. Parents of young children: parents (aged ≥ 18 years) attending on behalf of a child aged 0–5 years (later expanded to 0–10 years). The odds of being a 'clinically unnecessary' ED user were found to be 1.5 among children aged 0–2 years.[107] One-third of children attending EDs in London received reassurance only rather than investigations, and researchers concluded that many could have been managed without attending an ED.[108] Our Project Advisory Group identified this as an important group to study. However, a number of the qualitative studies identified in our WP1 review focused on parents of young children attending paediatric EDs, EDs or GP out-of-hours services. We decided to focus on this subgroup because most of these qualitative studies were US based and so did not apply to the UK.

Service and setting selection

We focused on the three service settings of emergency ambulance, ED and daytime general practice. In the original proposal we also said that we would work with one WIC to identify people who were not registered with a GP, if that service was part of the service configuration in that area. However, we did not do this because we focused the study on the three key services currently facing pressures in the UK.

We recruited interviewees in two geographical areas: Sheffield and Wolverhampton. We chose these areas because they offered different service configurations and we wanted to consider whether or not these had an impact on people's decision-making. Sheffield has a children's ED but Wolverhampton does not, instead using a self-contained section of its main ED. Additionally, Wolverhampton had recently introduced a pilot to integrate some general practices with the NHS acute trust (vertical integration), and we planned to work with a general practice taking part in this pilot.

Identification and recruitment of potentially eligible patients

Our aim was to recruit recent users of emergency ambulances, EDs or same-day GP appointments whom clinicians had identified as having made 'clinically unnecessary' use of that service, that is, they could have accessed a lower-acuity service or used self-care to deal with their health problem. We did not predefine 'clinically unnecessary' more specifically but left clinicians to make that decision. We excluded patients who had a known history of violence at the service where they had been identified, lacked the capacity to participate in the study, were < 18 years old or were unable to speak English. When we approached patients, we did not inform them that they were considered 'clinically unnecessary' users of the service, and explained the study in terms of wanting to understand how people made decisions about getting help when they had a health problem. We based our selection on clinicians' views of clinical necessity. The interviewers were not clinicians and did not make checks at interview. However, when the

interviewers made follow-up contact with emergency ambulance and ED participants, a very small number had been admitted to hospital and these people were excluded from the research.

Our intention was to complete 16 interviews for each subgroup, making a total of 48 interviews. The processes of identifying and recruiting patients to the study varied between services, and to a lesser extent, between subgroups and geographical areas. Although we had originally anticipated that recruitment in each service would take a short time only, a number of challenges meant that the process was considerably more complex and time-consuming and required significantly greater research team input than planned. We struggled to recruit enough parents of young children and enough young adults. To improve recruitment, we extended the age range from 0–5 to 0–10 years for children, and from 18–25 to 18–30 years for young adults. Whereas extending the age range for young children resulted in only two additional recruits in the older age bracket (i.e. those > 5 years old), another eight young adults were recruited by including those aged between 26 and 30 years. These decisions were supported by the literature, as children included in studies from our realist review were sometimes aged up to 16 years,[50,53] and young adults included those aged up to 44 years in studies identifying 'clinically unnecessary' use of EDs.[105]

Emergency ambulance service

In the two ambulance service areas (Sheffield and Wolverhampton), 'clinically unnecessary' users were defined as patients who received only telephone advice or were referred to another service by clinical staff, that is cases where an ambulance was not sent. We briefed relevant staff about the study, and they asked patients before the end of a call if they would be interested in participating in the study and willing to have their contact details passed to the research team. It was not possible for staff to ascertain whether or not someone was living in an area of deprivation based on our criteria (i.e. IMD score of 1–3). As a result, staff were asked to invite all patients who were not excluded and to establish the age of young adults and of young children whose parents were calling on their behalf, and the postcodes of all callers who agreed to be contacted. This information, together with patients' contact details (usually a telephone number), was telephoned to the research team so that we could check eligibility with regard to deprivation. Once ineligible patients were excluded, a member of the research team attempted to contact those remaining to explain more about the study and arrange to post or e-mail further information (for copies of the letter of invitation, participant information sheet and consent form, see the project web page: www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). A follow-up call was made a few days later to find out if the person was still interested and, if so, to arrange a convenient time for the interview. We confirmed this by letter or e-mail.

We faced considerable challenges in recruiting from the two ambulance service areas. Whereas managers were supportive of the study, front-line staff assessing patients were initially unaware of the study or their role in it. Owing to the pressured environment of the control centre, which operates tightly structured procedures, it was also challenging to introduce a new element into staff contact with patients. As a result, the researchers spent considerably more time liaising with front-line staff to establish effective procedures for patient contact and passing on information, and to keep the study in their awareness. Despite these measures, recruitment remained difficult, particularly in Sheffield, where it did not prove possible to establish a successful system for ongoing recruitment. We encountered specific difficulties with two subgroups. As ambulances are usually dispatched when a call relates to a young child, very few parents of young children were identified to be contacted. Recruitment of young adults also proved extremely difficult. These difficulties led to the expansion of recruitment from the original Sheffield and Wolverhampton areas to include the whole of South Yorkshire and the entire West Midlands region.

Emergency departments

Recruitment strategies varied between the hospitals involved in the study depending on the way in which staff identified relevant patients. A researcher (JL or LBE) was based at each ED for a number of sessions and liaised with relevant staff to identify potential recruits. Recruitment was generally undertaken during the 'in hours' period, but some attempts were made to recruit over the weekend or during the early evening.

The definition of 'clinically unnecessary' was more complex than that used in the ambulance service, as staff with a triage role were asked to identify patients whom they considered could have used an alternative service or self-care to manage their presenting problem, or, if they had used an emergency ambulance to access the ED, could have arrived by another means.

Sheffield emergency department

During each recruitment session, the researcher (JL) was introduced to the nurse in charge and relevant triage and reception staff by a research nurse, who had briefed the staff about the study. The researcher explained the study and discussed how to establish systems for identifying 'clinically unnecessary' users of the department. All patients referred to the GP collaborative were considered 'clinically unnecessary' users of an ED, as were other patients whom triage nurses considered could have used a different service or a different mode of transport (i.e. not an emergency ambulance). During the recruitment period, procedures within the department changed to enable reception staff to refer patients with minor injuries directly to a nurse practitioner, and we also approached these patients about the study. When a relevant patient was identified, the researcher met them briefly to explain the study and, if the patient was interested, provide them with written information. If the patient was eligible, the researcher contacted them a few days later to find out if they were still interested and, if so, to arrange a convenient time for an interview.

As with the ambulance service, recruitment took considerably longer than had been anticipated. Although staff were confident that many 'clinically unnecessary' patients were visiting the ED, it was difficult for them to keep the study in mind and recruitment tended to be through the GP collaborative referral only, which did not require them to change their existing procedures or to make a difficult decision about whether or not a patient's use of the department was appropriate. Some staff were initially concerned about including patients who were referred directly to the nurse practitioner, but, as this treatment could also be obtained by going to a WIC or minor injuries unit (MIU), it was agreed that attendance at a type 1 ED could be considered clinically unnecessary. Including this group of patients significantly improved the rate of recruitment, in particular enabling us to recruit the remaining young adults.

Sheffield children's emergency department

The researcher (LBE) worked closely with the research nurses in the hospital during the recruitment period. During each recruitment session in which the researcher was present, the research nurses screened the details of patients who were being triaged and identified parents whom they considered had made a 'clinically unnecessary' decision to attend the ED with their child. Parents were then approached by the researcher and followed up, as described in the previous section.

Wolverhampton emergency department

For each recruitment session, the researcher (JL) was introduced to relevant triage and reception staff by a consultant in the ED. Research nurses at the hospital had no involvement in recruitment at this site. The researcher explained the study and asked staff to give laminated cards to potentially eligible patients and direct them to the reception desk, where the researcher was based. When a patient was identified, the researcher approached them and followed them up, as described above.

As in the Sheffield ED, although the study was positively received by staff, recruitment was slower than expected, with similar problems of triage staff forgetting to mention the study or finding it more

difficult than expected to categorise patients as 'clinically unnecessary'. Variable shift patterns also meant that new staff had to be identified and briefed regularly. Eligibility was frequently confined to patients who were redirected to the independently managed urgent care centre (which treated only a limited range of conditions) and did not include those who were treated in the department. Parents of young children were also initially difficult to identify, as the children's section of the ED operated very separately from the rest of the department. This was addressed by the researcher working directly with paediatric staff for one recruitment session.

General practitioners

The researchers established links with a particular general practice in each area (LBE in Sheffield and JL in Wolverhampton) that agreed to be recruited to the study. Both general practices were in areas of social deprivation to increase the likelihood of finding participants from this group. We asked GPs and practice nurses to identify patients whom they considered had made 'clinically unnecessary' use of same-day/urgent contact, either in a face-to-face consultation or by a telephone call, and whom they believed could have managed their problem through either self-care or a routine appointment. To reduce the impact on GPs' time, they were not asked to speak to patients about the study but were asked to pass the patient's details to a research nurse or the practice manager at the end of their session. The research nurse or practice manager then telephoned the patient to ask if they were interested in the study and willing to have their contact details passed to the research team. Details of potentially eligible patients were then telephoned through to the team, who screened the patient for eligibility and made contact, as described previously. Different general practices employed slightly different approaches to identifying 'clinically unnecessary' users, so the inclusion criteria varied to some extent between practices as well as between GPs.

As with the other services, recruitment was much slower than anticipated, with a number of difficulties encountered, especially in Wolverhampton. GPs, particularly those with less experience, found it challenging to categorise patients as 'clinically unnecessary', and engagement with the recruitment process varied among GPs in each practice. Practices also struggled to find time to make the follow-up calls to patients at certain points. The recruitment of young adults proved particularly challenging, which led to it being extended to a second practice in Sheffield that had a younger and more affluent demographic.

Topic guide

The qualitative researchers developed a draft of the topic guide. The topic guide was not based on the programme theories from the WP1 review; it asked about the events leading up to the patient's contact with the health service from which they were recruited (e.g. advice sought, steps taken). We also explored patients' experiences and perceptions of other services in the emergency and urgent care system more generally. Interviewees were also asked if any changes could be made to the current health system that would improve their access to health care. To ensure that the interview questions did not convey any sense of judgement about participants' decisions, we piloted the topic guide with two PPI co-authors (LA and SB), who were asked to respond based on either a real or an imagined experience of using an emergency or urgent service. Feedback from this process led to some revisions to the sequence and structure of the questions. The resulting topic guide was in a semistructured format, based around nine main questions, each with a number of prompts to minimise the risk of missing key information. A brief introduction explained that the purpose of the interview was to understand the participants' process of deciding how and where to seek help for a health problem. The topic guide was used flexibly during the interview to enable particular areas of interest to be explored in more depth (for a copy of the topic guide see the project web page: www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). At the end of the interview, we asked participants to complete demographic information, as well as questions from two domains of the Health Literacy Questionnaire (HLQ) in preparation for its intended use in the survey aspect of our work (see *Chapter 6*).

Data collection

The researchers who had been involved in recruitment (JL and LBE) conducted the interviews; where possible, they interviewed the people who they had recruited. Both were experienced female qualitative researchers. We tried to conduct interviews within 2 weeks of the health episode to facilitate greater recall, but on some occasions difficulties in making contact or arranging a convenient date meant that this was not possible. All but one interview took place face to face, usually in the patient's home. Interviews lasted between 21 and 72 minutes (mean 40.5 minutes). We gave Sheffield-based participants the option to be interviewed in a meeting room at the University of Sheffield, and offered to pay return taxi fares to avoid any attendance barriers for those on low incomes. For logistical reasons, all Wolverhampton interviews took place in the patient's home. Details of interview locations are available on the project web page (www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020).

Data analysis

We audio-recorded each interview and transcribed it verbatim. Transcripts were checked for accuracy. Interviewers added a short summary to each transcript, providing any background information that would not be apparent in the transcript and any comments or conversations before or after recording. We uploaded finalised transcripts and summaries into NVivo 12 (QSR International, Warrington, UK), which was used throughout to facilitate data management and retrieval.

Data collection and analysis was an iterative process, with review of early transcripts informing later interviews. Members of the research team (EK, JL, LBE and AOC) met regularly to discuss the process and the findings of the analysis. We applied the key principles of interpretative phenomenological analysis (IPA)[109,110] to our analysis.

Interpretive phenomenological analysis aims to explore individuals' lived experience in a particular context, focusing on their perceptions of events and how they make sense of their experience.[110] Each individual's case is analysed as a whole using a predominantly inductive approach, which allows the essence of their experience to be identified without imposing a pre-existing framework of understanding.[109,110] These principles clearly reflected the approach that we wanted to take to understanding how interviewees had come to a decision regarding help-seeking for their health problem. Although IPA is generally used with small sample sizes, it is recognised to offer 'a set of flexible guidelines'[111] and can be adapted for use with larger samples.[109,110] There are a number of instances of the method being used to inform the analysis of patients', carers' and health-care professionals' experiences in a range of health-care contexts with samples of between 17 and 55 people.[112–115]

In our analysis, we drew on the key principles of IPA while adapting the method to our sample size of 48. For each interviewee, we created a memo and a diagram to identify and represent the drivers of their decision-making in relation to the incident discussed in the interview. To establish some common understanding and terminology within this process, all members of the team independently read the first few transcripts and then met to discuss and reflect on the themes that they had identified. Four members of the research team (EK, JL, LBE and AOC) were involved in this process. Two researchers created each memo, acting as either primary or secondary coder. One of the coders was the researcher who interviewed the participant, which ensured that any contextual factors not in the transcript could be taken into account. Primary coders read the transcript, identifying the drivers of (1) seeking health care (i.e. why the person made contact with a health service), (2) seeking health care at the service where the person presented (i.e. why they had made contact with a specific health service) and (3) seeking care urgently. In many cases, the same driver influenced more than one aspect of the decision (e.g. reason for seeking health care and reason for seeking care urgently).

We also sought to establish the strength of influence of each driver on the decision-making process by differentiating between what we termed 'primary' and 'secondary' drivers. We defined primary drivers as those factors that appeared to be key to the interviewee's decision, that is the things that tipped them into taking a particular course of action, either whether or not to seek help or to seek help from a

particular service. We defined secondary drivers as factors that had an influence on the process but appeared to be of less direct importance. Secondary drivers sometimes contributed significantly to the primary drivers and sometimes acted independently, but were integral to a complete understanding of the complexity of an individual's actions. Differentiating primary from secondary drivers was not always easy, and the same driver could feature as either a primary or a secondary factor for different individuals.

The complexity of many participants' drivers, and particularly the inter-relationships between the drivers, could not be represented adequately by the memos, and we found it helpful to draw diagrams to illustrate relationships between drivers for each interviewee (*Figure 3* gives examples of diagrams for two interviews), an approach that is suggested for use in IPA to enable relationships between themes to be identified.[109] This process allowed us to reflect on the interviewees' decision-making processes, and, in particular, to question the strength of the drivers and the relationships between them. We uploaded the final versions of the memos into NVivo.

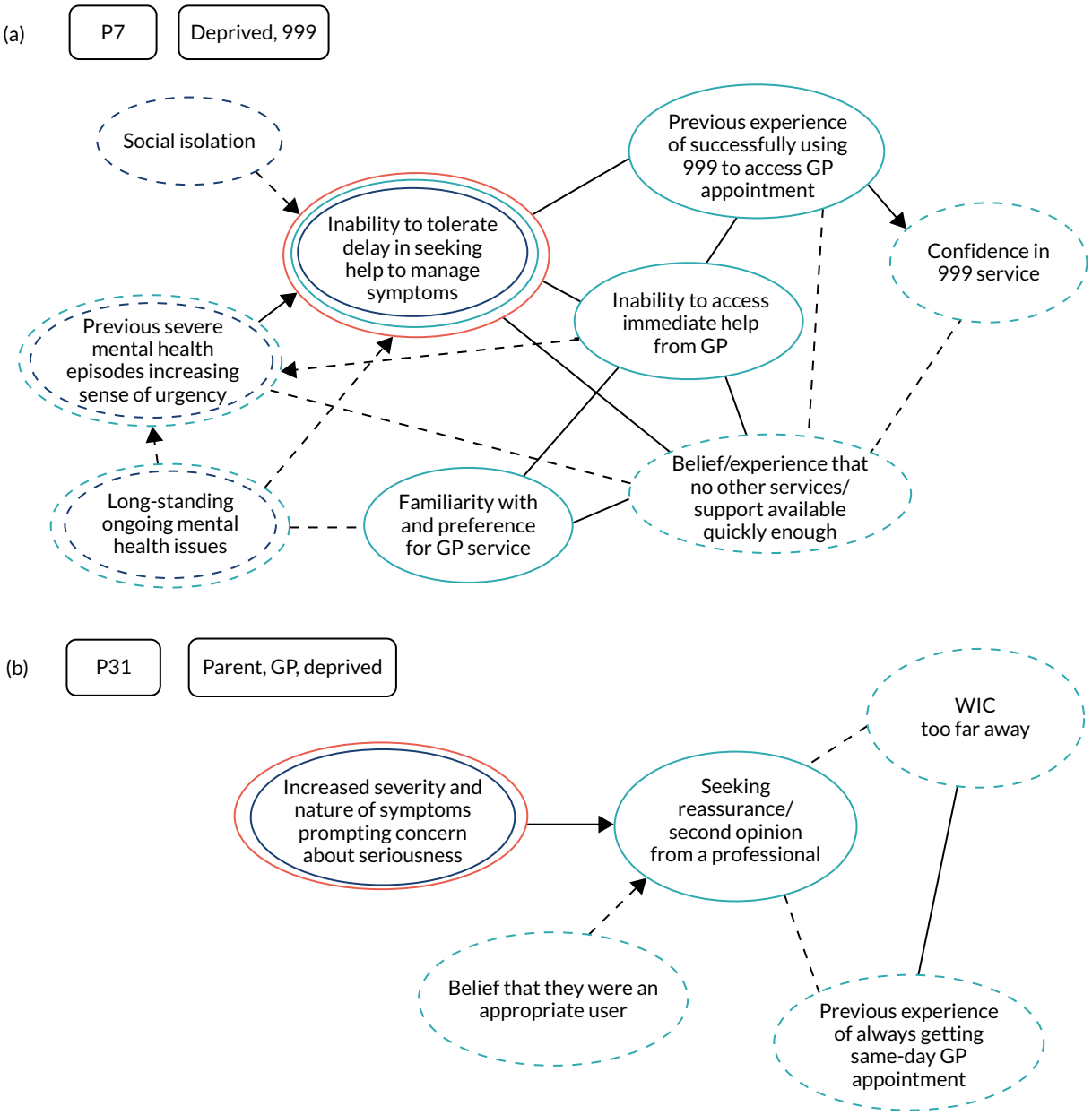

FIGURE 3 Examples of diagrams used for qualitative analysis. (a) Interviewee P7 (deprived, 999); and (b) interviewee P31 (parent, GP, deprived). P, participant. Dark blue, why sought help; orange, why sought help at that particular time; light blue, why sought help at the service they were recruited from; solid line, primary driver; dashed line, secondary driver.

As WP1 had been partially completed by the time WP2 data collection and analysis began, we had to consider the most appropriate approach to using the emerging programme theories in the IPA. We considered two alternatives:

1. to use the programme theories to guide the IPA (i.e. read them and use them to inform and structure the IPA coding)
2. to take an inductive approach to the coding, without reference to the programme theories, and reflect on the programme theories following completion of the definitive memo.

To be consistent with the principles of IPA, it was important to ensure that we focused on the interviewees' experiences; therefore, given that we considered it would not be appropriate to approach the analysis with a predefined structure, we chose the second approach. One of the researchers (JL) was involved in both developing the programme theories and undertaking interviews and analysis, and a second researcher (AOC) was involved in all aspects of the research, so it is likely that knowledge of the programme theories influenced the analysis. However, Emma Knowles and Lindsey Bishop-Edwards were not involved in WP1 and could base their analysis on the interview data only. Towards the end of the analysis, we considered the findings in relation to the WP1 programme theories and considered how the interviews could be used to refine the programme theories (see *Chapter 7*).

Reporting guidelines

We completed the COREQ (Consolidated criteria for reporting qualitative research) reporting guidelines.[116]

Findings

Sample size

We planned to undertake 48 interviews. We identified 130 individuals to take part in the study. Twenty-nine individuals declined to participate and another 53 did not respond to follow-up messages or were not contactable. We conducted 48 interviews: 37 in Sheffield and 11 in Wolverhampton.

The relatively small number of participants recruited in Wolverhampton did not enable us to carry out the planned comparison of interviewees' decision-making between the two emergency and urgent care systems. Interviewees were mainly from EDs and GPs, with few recruited from ambulance services (*Table 4*).

TABLE 4 Source of interviewees

		Subgroup (*n*)			
Service	**Setting**	**Parents**	**Young adults**	**Social deprivation**	**Total (*n*)**
Ambulance service (*n* = 6)	Sheffield	0	0	1	1
	West Midlands	1	1	3	5
ED (*n* = 23)	Sheffield (adults only)	–	9[a]	4[a]	13
	Sheffield (children only)	6	–	–	6
	Wolverhampton	3	0	1	4
General practice (*n* = 19)	Sheffield (area of deprivation)	4	1	5	10
	Sheffield (affluent area)	2	5	–	7
	Wolverhampton	0	0	2	2
Total		16	16	16	48

a One patient in this group was recruited from the ED but had arrived by emergency ambulance; therefore, in the analysis they were considered an unnecessary user of the ambulance service rather than of the ED.

Description of interviewees

The majority of interviewees were female ($n = 33$) and white British ($n = 33$) and half were in paid work. Interviewees reported contacting services about a range of concerns, including chest pain, back pain, sore throats, injuries, rash and coughs. For some interviewees, these concerns were part of an ongoing problem but others were experiencing an unfamiliar symptom or problem (*Table 5*). Health literacy scores ranged across the spectrum (for further interviewee descriptors, see the project web page: www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). The characteristics of interviewees in each subgroup are discussed in more detail below.

TABLE 5 Concerns for which the interviewees sought help, by subgroup and service

Subgroup	Service	Reason for contact
D	999	Chest/abdominal pain for 24 hours
D	999	Possible anxiety attack, part of ongoing problem
D	999	Wife's confusion, part of ongoing problem
D	999	Care home resident's unexplained injury and changed behaviour
D	ED via ambulance	Chest pain for 2 weeks
D	ED	Back pain, recurrence of previous problem
D	ED	Back pain after fall some days before
D	ED	Back/shoulder pain, breathing problems, ongoing problem
D	ED	Enlarged glands and sore throat
D	GP	Headache after known injury
D	GP	Sore throat, with general ill health from ongoing problem
D	GP	Ear infection and general unwellness after some weeks of illness
D	GP	Sore throat, with underlying health anxiety
D	GP	Flickering eye and feeling run down
D	GP	Older child's tonsillitis
D	GP	Requesting report for benefits assessment
YA	999	Breathing problems after chest infection
YA	ED via 999	Confusion, head pain and possible concussion
YA	ED	Vomiting blood after hangover
YA	ED	Neck/back pain and stiffness after car accident
YA	ED	Painful, swollen foot after fall
YA	ED	Painful wrist from known injury/sprain
YA	ED	Ankle/foot injury after fall
YA	ED	Joint pain/lack of mobility, part of ongoing problem
YA	ED	Rectal bleeding and pain, part of ongoing problem
YA	ED	Suspected miscarriage, concern regarding complications
YA	GP	Prolonged severe headache, part of ongoing problem
YA	GP	Stomach/digestive problems, part of ongoing problem

continued

TABLE 5 Concerns for which the interviewees sought help, by subgroup and service (*continued*)

Subgroup	Service	Reason for contact
YA	GP	Fatigue and other symptoms for some weeks
YA	GP	Exacerbation of anxiety, impacting on function
YA	GP	Needing repeat asthma medication
YA	GP	Needing contraceptive pill to manage symptoms
P	999	Child's head injury, not witnessed
P	ED	Child's unexplained rash
P	ED	Child's raised temperature after previous episode of convulsions
P	ED	Child's cough, vomiting mucus and struggling for breath
P	ED	Child's cough and vomiting mucus
P	ED	Child's vomiting and inflamed tonsils, part of ongoing problem
P	ED	Child's prolonged nosebleed, behaviour change
P	ED	Child's ear infection
P	ED	Child's sore eye, after being generally unwell
P	ED	Child's constipation, part of ongoing problem
P	GP	Child's rash
P	GP	Child's raised temperature, rash and changed behaviour
P	GP	Child's cough after being generally unwell including rash
P	GP	Child's raised temperature and distress after generally being unwell
P	GP	Child's cold, temperature and green phlegm
P	GP	Child's prolonged diarrhoea and behaviour change

D, deprived; P, parent; YA, young adult.

Order of presentation of themes

Where possible, for clarity, the drivers of help-seeking are listed in the same order for each subgroup. Some drivers were more important in certain subgroups, in which case these are presented first.

Parents of young children subgroup

Sample characteristics

Sixteen parents were recruited, ranging in age from 22 to 42 years (mean 33 years). The sample predominantly consisted of interviewees with either high or low deprivation IMD scores, rather than medium scores. Seven had a score of between 1 and 3 (i.e. indicating that they lived in an area of social deprivation, according to our study criteria), whereas another seven had a score of 8–10 (indicating affluence). All but two of the interviewees were female and were accessing care for the child in their role as the child's mother. Just over half of the interviewees described themselves as white British, with four identifying as black African or Caribbean, two as other white and one as Asian. Twelve interviewees indicated that they were married or living as married, and the other four indicated that they were single or not married. Parents in the sample had between one and five children, with six having one child. The children in the sample were predominantly at the young end of our age range, with nine aged ≤ 2 years and another four aged 3–5 years, and only two aged > 5 years. Of the 16 parents interviewed, one had been recruited following contact with the emergency ambulance service, nine had been recruited following contact with an ED and six had been recruited following

contact with a general practice. All but one of the interviewees who were living in areas of deprivation had used emergency ambulance or EDs, whereas those with higher IMD scores had been recruited from their GP.

Overview of findings for parents of young children

Two key drivers were most evident in parents' decision-making regarding seeking health care: (1) concerns about the seriousness of symptoms that the child was experiencing and (2) a complex interlinking of a sense of responsibility as a parent of a young child and a lower threshold of concern regarding children's health. In many cases, these concerns prompted a need for some form of reassurance from a health-care provider. There was a strong sense of interaction between these drivers, with each potentially triggering the other. Although these drivers were most prevalent, a number of other factors were also present and contributed to the decision to seek care: in particular, the perceptions or experiences of services, the influence of others and the timing of the incident.

Concern regarding seriousness of symptoms

For all parents in the sample, concern about their child's symptoms was a key driver of their decision to seek care. A variety of symptoms were reported, including raised temperature, diarrhoea or constipation, head injury, cough, cold, ear infection, rashes, vomiting, sore eye and prolonged nosebleed. Reflecting programme theory 1, uncertainty about symptoms causing anxiety, parents described their concerns in terms of unfamiliar symptoms, prolonged or worsening symptoms, or a change in their child's behaviour that triggered a belief that the problem might be serious:

> *I don't know whether it was affecting his breathing or not but sometimes I felt like he was struggling, while he was coughing, in the breathing. With the cold and a virus, I'm quite confident to say that's what it is. So if he is ill with a cold then I wouldn't ring the GP, to say 'oh he's got a cold'. It was the cough that worried me most with it being either whooping cough, or croup or anything like that. With him being so young, it was the cough that worried me, more than anything really.*
>
> *Participant (P) 25, parent, GP*

The type of illness or injury could also exacerbate concerns, with head injury or rashes described as particularly worrying. Aligned with programme theory 2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety, this concern was linked to a belief that these symptoms could escalate quickly and have serious consequences for the child's health:

> *[Child] came out in a rash on his thigh and his back and, just under his arm, and because we had been to [place] I thought that it might have been meningitis or something although he has had his jabs, before we went. It looked sort of like meningitis, same sort of symptoms, bruising, purple and red that's why we were really concerned about him.*
>
> *P20, parent, ED*

All three services in the study were used by parents who were concerned about symptoms. The need for reassurance was a key driver and different services appeared to offer this in different ways. Linked with both programme theory 1, uncertainty about symptoms causing anxiety, and, to a lesser degree, programme theory 6, waited long enough for things to improve, some parents' concerns led them to feel that they could not delay seeking care any longer and needed some form of reassurance from a health-care provider. In a few instances, the inability to delay could be driven by a sense of panic and need for immediate reassurance, which was evident in the account of the one interviewee who made contact with the emergency ambulance service. Highlighting the influence of programme theory 7, stressful lives and difficulty coping, the interviewee described how she had discovered her child's earlier injury late in the evening; the fact that she was a single parent of a number of young children

with no access to a car exacerbated her existing anxiety about her children and prompted her to seek help from the only service she perceived that she could access at that particular time of day:

> *I was thinking 'oh god, what am I going to do', so I was thinking the only people that I could think of was the ambulance people and thinking I need to tell them, because I can't go to sleep, and sort it out the next day, it needs to be sorted today. I need to speak to them just in case with a head injury . . . 'cause we don't know how sharp the thing was [that caused the injury], if it went in, if it was a pin, we don't know. So, and it could have been something that is dirty you know, loads of things were going through my head.*
>
> *P11, parent, emergency ambulance*

However, the majority of parents experienced a situation less intense than this one, and they expressed their need for reassurance in terms of wanting a health-care professional to confirm their feeling that their symptoms did not indicate a serious problem rather than because they were concerned that the problem was serious. In these instances, the GP was frequently interviewees' preferred service choice. Additionally, some wanted their child to be physically examined, meaning that a telephone-based service (such as NHS 111) would not meet their needs:

> *[Going to the GP] was going to rule out anything serious, and it was going to give me peace of mind, so that I didn't have to worry about it 'cause as soon as I left that surgery, she's been checked so it's like, she's fine . . . it felt like a big weight had been lifted, almost, which is stupid really isn't it but yes . . . you just know somebody who's qualified has looked at her and has ruled out anything serious.*
>
> *P32, parent, GP*

Many parents in the sample described themselves as well informed about health care or appeared to the interviewer to be well informed. This was reflected in the higher HLQ scores in this subgroup than in the other two subgroups. Parents often described administering oral medications, including for pain, in the lead-up to help-seeking, and they generally seemed confident in doing so. They often described a period of monitoring and self-care prior to seeking help, rather than seeking care on the day that the symptoms were first noticed. Aligned with programme theory 6, waited long enough for things to improve, they became concerned when these strategies did not appear to alleviate the symptoms. By contrast, one parent appeared reluctant to medicate her child during the incident, despite using that medication previously, and this was consistent with an overall sense during the interview that she had difficulty absorbing medical information, which may have increased her uncertainty about managing the situation.

Sense of responsibility as a parent of a young child

In many instances, concern about symptoms and a decision to seek help were affected significantly by the parent–child relationship in a number of ways. Corresponding to programme theory 3, fear of consequences when responsible for others, some interviewees explicitly identified their specific sense of responsibility as being a parent; this was expressed particularly strongly by one single parent in the sample:

> *I'm her mother and I'm the only person who can help her so, going back to that panic you know what's right, but she's my daughter, so I need to make the right decision.*
>
> *P29, parent, ED*

Parents often described seeking care quickly because they did not want to take risks with their children's health. This was often at odds with how they approached decision-making about their own health, for which they described 'putting up with things' for longer. In addition to the sense of responsibility, there was an underlying perception that less risk was involved in delaying care for adults than in doing so for children. Aligned with programme theory 3, fear of consequences when responsible for others,

parents also described how their distress at seeing their child suffering exacerbated their concerns about symptoms:

> *I just don't worry that much about myself when I get ill, like I mean I got a bit ill OK, just take some paracetamols, you know. But when it is [name of child #1] I'm like thinking how she feels or she probably feels pain or is she struggling, oh poor girl you know, you want to comfort her, and kiss her and everything, and you just worry, you want her to get better quickly.*
>
> *P30, parent, ED*

Lower threshold of concern regarding children's health

Closely connected to the sense of parental responsibility, many participants also described a more general concern about managing their children's health. In general, parents in the sample did not appear to be excessively anxious to the researchers, but expressed concern or anxiety driven by a belief that there was a need for a lower threshold for seeking help for a child. There was a perception that children's health could be unpredictable and deteriorate quickly, which could be seen as an aspect of programme theory 2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety. In one specific instance of this programme theory, a parent who identified herself as a 'worrier' felt that her anxiety had been exacerbated because she knew about a situation in which a delay in seeking care had resulted in a long-term health problem. More generally, a number of parents described a particular anxiety in relation to babies and young children, as a child's inability to explain what or how they were feeling increased the sense of uncertainty described above and reflects programme theory 1, uncertainty about symptoms causing anxiety. In this context, some parents noted that they would have taken a different course of action had the problem related to an older child. Although the age of the child was a significant factor in increasing the sense of urgency to take action, there was no apparent relationship in our sample between the child's age and the parents' choice of service, with children aged ≤ 2 years going to both the GP and the ED. Being a first-time parent was also not identified as having a significant impact on help-seeking in most cases. Although six of the parents in the sample had only one child, this was described as significant by only one parent in terms of increasing her concern because of her lack of experience. However, most of the parents in this group had children aged 3 or 4 years, and so they were not new to the experience of being a parent. By contrast, one parent whose two children had a wide age gap described feeling the anxiety of being a new parent again and taking her 2-year-old to the ED:

> *They have 9 years' difference so [name of child] when she was born was like first, 'cause I really forgot everything.*
>
> *P30, parent, ED*

Aligned with programme theory 7, stressful lives and difficulty coping, a few parents described how ongoing health worries about their child had increased their concern and led to their decision to take action in relation to this particular incident. These parents described their children being frequently ill with minor problems, or experiencing longer-term health problems; in both circumstances, there was a sense that this affected the parents' willingness to wait for the situation to resolve. Highlighting another aspect of programme theory 7, stressful lives and difficulty coping, one parent described being ill at the same time as her child and how this had affected her sleep. She recognised how this, in turn, had reduced her coping capacity, making the situation feel more urgent.

Perceptions and experiences of health services

Aligned with programme theory 9, perceptions or experiences of services, interviewees' opinions of different health services had a significant impact on where they decided to seek help, with positive and negative views of their general practice being particularly influential. Most parents in the sample who sought care from the GP described their confidence in being able to access a same-day appointment or

telephone advice for their child as a key factor in their decision-making. This was often based on previous positive experiences of such access:

> *In the past if I've rung up [the GP] for [name of child], I could ring at 2 o'clock say it's for my son who's a toddler and they will ring back within probably 15–20 minutes to get us an appointment, so they're really, I've never had to do it for myself but with kids especially they're really good, they will get you in that day.*
>
> *P23, parent, GP*

Notably, a number of these parents did not believe that they could access an appointment for themselves in this way, and felt that GPs tended to provide appointments for children because the risks to children's health were perceived to be greater, suggesting the possible influence of programme theory 3, fear of consequences when responsible for others, and programme theory 2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety. Even when appointment access was enhanced for children, these parents highlighted the challenges of booking a GP appointment, particularly because the timing of doing this often coincided with taking children to school. However, for other parents, their negative experiences or views about access to general practice were significant drivers in their decision to go to an ED. Corresponding with programme theory 10, frustration with access to a GP, parents described unsuccessfully trying to get a GP appointment on the occasion in question, as well as previous failed attempts that had created their perception that no appointments would be available within the time frame required:

> *They [GP] didn't have any appointments. Usually if I ring from 8.30 they give me appointment, probably because it is a child they give me the same day but it was a bit too late, I called at 10 o'clock as I said she felt a little bit better and I thought OK let's leave it, then I called like at 10 o'clock and they didn't have any appointments.*
>
> *P30, parent, ED*

In addition to access problems, one interviewee described how a poor relationship with her GP influenced her decision to seek care at an ED. She reported not being satisfied with the care, examinations and treatment that her daughter had received from the GP on previous occasions, offering no resolution to her ongoing health problems. In another instance, two previous poor experiences of GP out-of-hours care left an interviewee unwilling to consider using this service again:

> *. . . if you even go to the GP, they just spend 5 minutes with you, it's like you don't feel like you've been heard properly. So I thought if I go to A&E [accident and emergency] they might take it further, and help her.*
>
> *P21, parent, ED*

Programme theory 9, perceptions or prior experiences of services, also operated in terms of positive views of the ED, whereby parents believed that only a particular service could provide the skills, resources and speed to offer reassurance or resolve their child's health problem. Parents described the ED as having more doctors with greater levels of expertise and specialism, who had access to equipment and were able to carry out investigations:

> Interviewer: . . . *what was the thing [the ED] could offer over everything else?*
>
> P29, parent, ED: *To keep [name of child] safe, and offer equipment and medical things, and decisions that I couldn't make for her.*

Most of the parents in the sample who had accessed an ED said that they had used it on at least one previous occasion, and this positive experience of and familiarity with the ED may have influenced their decision to access the ED on the day in question; that is, there was some evidence of recursivity at play.

Influence of others

Although family, social networks and health-care professionals did not appear to significantly affect the decision to seek care among this sample, they did have some influence on where care was sought. Aligned with programme theory 8, following the advice of trusted others, around one-third of the sample appeared to have been directly influenced by someone else when deciding to seek care from a particular service. Most often this was advice to attend an ED, but in one instance an interviewee described following her mother's advice to seek care at the GP, noting that she trusted her mother's judgement because of her mother's experience of bringing up her and her siblings. Parents in the sample identified a range of people who had advised them to attend an ED, including GPs, nursery staff and, in the case of one man, his wife, who was also a health professional; in some instances more than one source of advice was present. The two interviewees who had been advised by a GP to attend an ED had different experiences. In one instance, the GP had physically assessed the child and, in advising the interviewee to attend an ED, had been following advice that they had received from a specialist department at the hospital. That is, the GP was indirectly following advice of a trusted other. The other interviewee, whose child had an unexplained rash, received advice from a GP over the telephone; highlighting the influence of programme theory 3, fear of consequences when responsible for others on health-care professionals, the GP advised attendance at an ED because they were unable to confidently rule out the risk of something serious without undertaking a physical examination.

The indirect influence of others was also apparent in nearly half of the sample, highlighting a refinement of programme theory 8, following the advice of trusted others, in terms of the broader influence of social networks. This influence took the form of support or encouragement for interviewees' decisions, and came from partners, other family members, a colleague and, in one instance, NHS 111. All interviewees described or indicated having some form of social support, with most being married or living as married, and others mentioning partners, family members, friends or neighbours in their support network.

In an extension of programme theory 8, following the advice of trusted others, parents discussed how they generally used the internet to obtain health advice and rule out possible diagnoses. This strategy did not appear to exacerbate their concerns or heighten their anxiety. In relation to the specific incident being discussed during the interview, just one interviewee described that the internet had directly influenced her decision to seek care, having read advice from an NHS online source that recommended that a child of her child's age, with the particular symptoms her child had, should receive medical care. Although this source did not appear to suggest using a particular service, she also considered advice from her child's nursery to attend an ED.

Timing of incident

For a small number of parents in the sample, the timing of the incident intersected with other concerns to affect their decision about the choice of service. As already noted, the lack of support and resources available to one parent affected their decision to call an emergency ambulance in the evening. In another instance, a problem late on a Friday afternoon prompted one parent to attend an ED, as they believed that a GP appointment would be unavailable and were unwilling to use the GP out-of-hours service. In relation to seeking GP care, two parents made contact on a Friday, with both expressing the sense that this was their last opportunity to contact their own doctor before the weekend. That is, the timing of the episode added to parents' anxiety levels, leading them to seek care immediately. Neither parent was averse to contacting other services but felt that seeking care over the weekend could be more complicated:

> *. . . you think if I don't get in at the doctors before the weekend, we could end up with a pickle over the weekend, so we best get this checked out.*
>
> *P32, parent, GP*

Young adults subgroup

Sample characteristics

Sixteen young adults were recruited, ranging in age from 18 to 30 years (mean 25 years). Most interviewees described themselves as white British, with two being Asian (one Chinese and one Pakistani). Approximately two-thirds of the young adults were female, and all but one had lived in the city from which they were recruited for > 1 year, with most living there for > 5 years. The majority were occupied full-time as students and/or employed full- or part-time. Three described themselves as unemployed because of health problems. Five interviewees were recruited from a general practice in an affluent area and were working full- or part-time, whereas the interviewee recruited from an area of deprivation was unemployed. Half of the sample ($n = 8$) were living in areas of deprivation (IMD quintile 1 or 2), and, although their child was not the focus of their service contact, four were also parents. All four parents were from areas of deprivation.

Interviewees sought help for a wide range of reasons, and sometimes included more than one reason. Reasons included pain after injuries ($n = 4$); exacerbations of chronic or ongoing symptoms, including pain, bleeding, digestive problems, fatigue and anxiety ($n = 8$); breathing difficulties; suspected concussion; vomiting blood after drinking alcohol; suspected miscarriage; and seeking medication to manage anticipated rather than actual symptoms ($n = 2$). The interviews focused mostly on contact with an ED ($n = 8$) or a GP ($n = 6$), with only two relating to emergency ambulance use. The service contact in this sample seemed to be differentiated by sex and deprivation. All of the men had used the ED or emergency ambulance service, whereas just over half of the women had been recruited after contact with the GP. Almost all of the young adults living in areas of deprivation (7 out of 8) had contacted the ED or emergency ambulance service and only one had contacted the GP; both of the young adults who received care from the emergency ambulance service were living in areas of deprivation and were unemployed because of long-term health problems, particularly mental health. By contrast, five of the young adults living in more affluent areas had used a GP and only three had used the ED.

Overview of findings for young adults

Three drivers were most evident in young adults' decisions to seek health care: concerns about the meaning/seriousness of the symptoms that they were experiencing; an unwillingness to further delay care-seeking; and perceptions or experiences of services. Although these drivers were the most significant among this sample, a number of other factors were also frequently present, notably the influence of others, particularly those in their social network, and the impact of poor mental health. Most interviewees identified between two and four drivers of their decision to seek care, which were usually interconnected.

Concern about seriousness of symptoms

Around half of the sample had sought health care because they had been concerned that their symptoms could indicate a serious health problem. This concern aligned clearly with programme theory 1, uncertainty about symptoms causing anxiety, and could be prompted by a number of aspects of their situation and experiences. Unfamiliarity with a symptom was a particularly significant trigger, which in some instances was exacerbated by seeking information online:

> *I was concerned and thinking maybe I had something severely wrong with me or a bit paranoid maybe because, I mean like the daft decision is searching the symptoms online, and it just freaked me out [. . .] just, all sorts of like, I don't know, just big stomach issues, something like ulcers or obviously cancer is always on it.*
>
> *P3, young adult, ED*

Although unfamiliarity with a symptom was a frequent driver among this sample, experiencing recognisable symptoms could also prompt concern. Although this driver featured less strongly here than it did in the parent group, it could increase the urgency to seek help, either because it suggested the

return of a previous problem or illness or because the young adult was aware of the serious consequences that similar symptoms had had for someone else. That is, programme theory 2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety, could contribute to their concerns:

> *. . . that's why I rang up, that's why when [P36]'s head so hurting, and he said it had been for 3 days, and I remembered a story he told me about a girl who had had a headache and went into hospital and they said it was a migraine, [P36: and they sent her home] and the next few days it wouldn't go away [P36: and she died, with a bleed on the brain] and then she died of a blood clot.*
>
> *P36 and girlfriend – both present for interview, young adults, emergency ambulance*

The severity of symptoms could be another key trigger of concern, most commonly in relation to injury rather than illness. Sometimes this was a progressive worsening of pain or other aspects of the problem despite self-care measures, and it was this worsening that prompted the search for help because it introduced an element of unfamiliarity. On other occasions the severity was immediately apparent and was itself sufficient to trigger action:

> *As I fell off I landed awkwardly on my right ankle and just completely rolled it. And then at that point it felt – it kind of just went straight away it went really hard – and as dramatic as it sounds I thought there was a bone sticking out. I couldn't dare look because it just hurt.*
>
> *P47, young adult, ED*

In instances such as this, anxiety about the nature of the symptoms and their potential seriousness also had a clear impact on service choice, in this case (see above) prompting the decision to use the ED. A similar process was evident for both of the young adults who contacted the emergency ambulance service, when their concern triggered a need for a speedy response that only this service was perceived to offer. In all of these decisions, programme theory 1, uncertainty about symptoms causing anxiety, can be seen to operate in combination with programme theory 9, perceptions or prior experiences of services, to drive both the decision to seek help and the choice of service.

Concern about the severity of symptoms was sometimes accompanied by a desire for reassurance. In a number of these instances, young adults echoed our sample of parents in describing how they thought that their problem was unlikely to be serious, but wanted to allay their nagging concern:

> *. . . I was like, I want to make, I want to double check that it is not like a break or a twist or like a torn thing or they are going to put me on stronger medication 'cause I was in a lot of pain.*
>
> *P6, young adult, ED*

Unwillingness to further delay care-seeking

Around half of the young adults in this sample had sought care because they either were unwilling to delay seeking care further or could not tolerate their health problem any longer. This driver, which aligned with programme theory 6, waited long enough for things to improve, always operated in conjunction with other drivers. In some instances, the other driver was interviewees' concern about the seriousness of the symptoms, as discussed above, but a number of other factors were also found to contribute to this sense of urgency. The most common of these in this sample was a concern about the impact, or the potential impact, of their symptoms on their ability to function, including work, study, child-care responsibilities and leisure activities:

> *I've been feeling under the weather generally for a little while but that particular week I'd just had a really difficult week, I couldn't, I was so tired and fatigued and I couldn't really eat, do my job properly, so I was struggling with driving and just being at work so I wanted to try and get it looked at.*
>
> *P38, young adult, GP*

This concern about the impact that symptoms could have on functioning corresponds with programme theory 4, inability to get on with daily life, and was particularly prevalent among the young adult sample. Our findings also offer a refinement of this programme theory by highlighting the influence of anticipated, rather than actual, impact on interviewees' decision-making.

In a number of instances, as is apparent in the above interviewee's account, the concern about the impact on function did not arise out of an isolated incident of illness or injury, but was part of a longer-term health problem for which they were seeking resolution. In these cases, the decision to seek care generally had followed attempts to deal with the problem through self-care, including taking over-the-counter medication, and was also sometimes part of a continuing process of medical consultation. This would seem to be an additional dimension of programme theory 6, waited long enough for things to improve, and perhaps an extension of programme theory 10, frustration with access to GP, in that it arose from frustration with the ongoing care from a GP rather than a lack of access to a GP. The issue was more that the failure of previous help-seeking to resolve the situation had prompted further action to try to deal with the problem:

> *[I was] really sick of it, really, and just having all these symptoms, and for all these tests that I've had to come back clear. It's like well there is something wrong with me so it's not, if it's not about these foreign bugs or if it's not about gluten or whatever, there is something wrong. I need to pursue it, and try and find out [what was wrong].*
>
> *P44, young adult, GP*

A need for pain relief was also an important reason why some did not want to delay care, specifically prompting action at that time. This aligned with programme theory 5, need for immediate pain relief, and, although this was important, it always featured in combination with a range of other factors, as is evidenced in the following account:

> *. . . the night before I'd had a headache and I woke up and it was even worse, so I just rang them [GP] up and just said you know I can't, can't deal with this now. I've got a toddler to look after, is there anything that I can do now.*
>
> *P35, young adult, GP*

There was also evidence in this sample of issues that could expand programme theory 6, waited long enough for things to improve, into areas that might be judged externally as unacceptable reasons for contacting services urgently: impatience and lack of organisation. In one instance, a general impatience and intolerance of waiting was evident in the account of the decision-making process, and in the person's behaviour both during recruitment and in the interview. It is likely that this impatience contributed to their decision to call an emergency ambulance in this instance.

In two cases, no symptoms were present at the time the interviewee made contact, but familiarity with their existing health conditions had prompted them to seek help in the form of obtaining prescribed medication. One interviewee had run out of essential medication and, unexpectedly, had been unable to access it through the usual route. The other interviewee needed a new prescription so that they could manage potentially troublesome and distressing symptoms during an upcoming holiday. These two issues could be viewed as a lack of organisation. However, it might also be the case that, in the first situation, programme theory 2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety, was operating in terms of the interviewee's concern to avoid a recurrence of symptoms managed by the medication. Programme theory 4, inability to get on with daily life, was operating in the second situation, although essential aspects of daily life, such as working or looking after children, were perhaps not affected.

Perceptions and experiences of health services

Interviewees' perceptions of different services were a significant driver of their decision-making in relation to choice of service. Aligning closely with programme theory 9, perceptions or prior experiences of services, these were both positive and negative and related to a variety of emergency and urgent care services.

Contact with the emergency ambulance service in this sample was related to its positive characteristics. One interviewee described her confidence in the speed and skills of the ambulance service to assess and deal with her problem, which was driven partly by previous positive experiences, including the service's reassurance that she had 'done the right thing' (programme theory 9) to call. That is, recursivity was at play in her decision-making based on the positive reinforcement of her previous decision. She also noted learning subsequently that NHS 111 was able to contact an ambulance if this was deemed necessary, and that this would change her future help-seeking behaviour. Another positive characteristic of the emergency ambulance service was that it was a source of transport, offering a safe, easy and rapid way of getting to hospital.

The majority of interviewees in the sample who sought care in an ED did so because of either a positive belief that it offered the best and/or most appropriate service or a negative perception that other services could not meet their particular needs. Positive characteristics of the ED were that it offered quick access to help and had a wide range of resources and facilities, and that its doctors and nurses were able to deal with serious problems. Proximity of the ED to their home or workplace was also a secondary consideration for a few interviewees who lived within 2 miles of the hospital. One of these interviewees, who lived in an area of deprivation, cited the cost of transport as a factor in their decision to choose the ED instead of the WIC; that is, for this interviewee, choosing the ED was a matter not of convenience but of cost. This could be aligned with programme theory 7, stressful lives and difficulty coping, in that limited financial resources affected decision-making. The influence of proximity of service is not included in any of the existing programme theories.

In some instances, interviewees' decisions to contact an ED were framed as resulting from negative features of other services, particularly general practice, where delays or difficulties in access were a particular concern, aligned with programme theory 10, frustration with access to a GP. Negative perceptions of general practice were related not only to access. Two interviewees had specific difficulties with their relationship with their GP. One felt that the departure of her previous GP meant that nobody at the practice understood her complex situation well enough to meet her needs, whereas the other's previous negative experience with her GP contributed to her reluctance to contact this service for her particular symptom. By contrast, all interviewees who had been recruited because they had successfully obtained care from the GP perceived that general practice was the most appropriate service to address their needs. A range of reasons for this perception was given, including that the GP provided an opportunity to discuss concerns about ongoing or recurrent health problems or to obtain a diagnostic label, as well as the practice being the only or most appropriate place to obtain repeat prescriptions or to review existing prescribed medication. Some interviewees saw the GP as a trusted source of knowledge, and in one case this was because the interviewee had an established positive relationship with a specific doctor. For this individual, the GP also represented the quickest and most accessible route to help, important considerations that linked with many of the factors explored previously in relation to an unwillingness to further delay care-seeking (programme theory 6) and the influence of proximity of service on help-seeking behaviour.

Experiences of trying to access a GP were sometimes also a significant factor in deciding where to seek care. A few interviewees described how they had attempted to make contact with their GP, but their inability to get an appointment or to speak to someone quickly enough had prompted them to seek help elsewhere. This frustration aligned with programme theory 10, frustration with access to a GP, but was also related to programme theory 6, waited long enough for things to improve, because people wanted a same-day GP appointment. Individuals sought a same-day appointment either because

they wanted to be seen urgently or because they had not been able to book an appointment in advance that allowed them to attend to their work responsibilities, which then led to a sense of having waited long enough. By contrast, two interviewees described their confidence that they could obtain same-day GP appointments when needed and so they chose this approach to seeking help:

> *If I'm feeling a bit run down at all, or cold, or my chest is bad then they will get me in, on that same day regardless 'cause obviously it's a bit more of a medical emergency I guess, more urgent . . .*
>
> *P40, young adult, GP*

A lack of awareness of other potentially appropriate services also contributed to the decision-making process. This particularly related to the MIU, which could probably have met the needs of three of the interviewees who accessed help from the ED but was not considered as an option either by them or by those who gave them advice.

Influence of others

For all but three young adults in the sample, other people had some degree of influence on their decision to seek care or on the service that they accessed. In a few instances, a direct influence was evident, corresponding with programme theory 8, following advice of trusted others. Two interviewees had been advised by health-care professionals specifically to attend the ED, one during a consultation with their GP and the other through a contact with NHS 111 as a result of being unable to speak to their GP:

> *(. . .) the 111 lady spoke to a nurse that – to get a bit of advice about whether I could go to the walk-in centre, she said you wouldn't be able to go to the walk-in centre but actually we would say go straight to the hospital for stuff like that.*
>
> *P46, young adult, ED*

Direction to go a specific service could come from family and friends as well as from health professionals, and this was sometimes based on those others' experiences. This was particularly the case for direction to go to an ED, perhaps indicative of social norms about where to seek care for particular types of health problems. For example, a colleague's opinion about the diagnostic tools available at an ED (i.e. programme theory 9, perceptions or prior experiences of services) had determined where the following interviewee went for care:

> *I'd knew that one of my colleagues a couple of months ago had done similar thing and sprained it, I asked him where he went because I didn't right know, I were gonna go to walk-in centre but then he said 'there's no point because they don't do X-rays I don't think, which you'd need' so that's when I went to [ED].*
>
> *P45, young adult, ED*

> *(. . .) with it being a year, and I have had other symptoms, I've been in hospital because of it, they're taking that long to get this operation so I think they [partner and mum] were just fed up and they were like just 'let's go to place' because we could've gone into [local town] but they thought, we just thought 'let's go to [place] where the main thing is because we're gonna be waiting wherever we go so we might as well go there'.*
>
> *P43, young adult, ED*

Sometimes the family member or friend made the decision on behalf of the patient if they felt that the patient was not fit to make it, or they encouraged the patient to take a particular action (as detailed above). Their influence could also take a more advisory, less directive form; for example, a shared decision between a young adult with a learning disability and their mother, or support from family,

partner, friends or colleagues for an interviewee's decision to seek help. A negative example of this theme was one interviewee's lack of social support. Their problem occurred late at night, making it difficult for them to draw on their usual social network, exacerbating their uncertainty and driving an urgent need for reassurance, which led them to call the emergency ambulance service:

> *I honestly thought I was going to die. I really, really thought I was going to die because I'd never felt like that in my life. Like I said, being on my own as well, nobody to speak to, nobody to reassure me. It was just so scary.*
>
> *P9, young adult, emergency ambulance*

This impact of lack of support due to timing of the incident is not represented explicitly in the programme theories but could be related to programme theory 7, inability to cope due to stressful lives.

Poor mental health and stressful lives

Although the majority of young adults presented to a service because of physical concerns, around one-third of those in the sample made some reference to also having mental health problems, particularly generalised anxiety and depression. These influenced their decision-making in a variety of ways. One interviewee's acute exacerbation of mental health problems was the direct trigger for help-seeking, with programme theory 1, uncertainty about symptoms causing anxiety, evident in her account:

> *I just didn't know what was wrong with me at the time it was just really scary . . . I was just frightened it had just not sort of happened before . . . Just a really heightened sense of fear and the whole sense of doom thing was happening and – at the time – it felt very urgent. Yeah I'd, I'd never had it like that before so it's just totally new.*
>
> *P39, young adult, GP*

Others described a complex interplay between their mental and their physical health. Illustrating the difficulties described in programme theory 7, stressful lives and inability to cope, interviewees' ongoing struggle with mental health negatively affected their ability to function and to cope with the challenges of additional physical symptoms. In a number of instances, this driver could be seen to operate in conjunction with programme theory 1, uncertainty about symptoms causing anxiety, with interviewees' overall increased levels of anxiety prompting a need for urgent help and reassurance about their symptoms. In one case, a more complex need for validation was related to mental health problems:

> *I'm not always as confident in, what I know I'm feeling and, I know I'm feeling it, but when I go to the doctors, the hospital and I explain to them and that like no, you are not just like, making it seem worse. It is bad. But we know what you are dealing with and we are going to try and help, so generally that is why I go to the hospital, if I ever go. So I need the reassurance that I'm not just like making it seem worse than it is and that there is something and that they can help.*
>
> *P6, young adult, ED*

Mental health problems could also have an impact on the particular service that interviewees decided to contact, with programme theory 9, perceptions or prior experiences of services, sometimes evident in the choice to use the ED or emergency ambulance because of the perception that these services would respond more quickly. A more complex influence was potentially present for one interviewee, whose anxieties made it difficult for her to leave home unaccompanied and may have influenced her decision to call an emergency ambulance. This is aligned with programme theory 7, stressful lives and inability to cope. In addition to mental health problems acting as drivers of urgent care seeking, and influencing which service was contacted, high levels of stress from daily living could also have an impact on the urgency of help-seeking in different ways. First, these could trigger an exacerbation of existing physical symptoms to an intolerable level. Second, they could influence which service was contacted by prompting people to seek a service that they felt did not add to their already high levels of stress. For example, the interviewee providing the following quotation had unpredictable work

commitments that made it impossible for them to book appointments very far ahead; therefore, they took advantage of unscheduled time off to access help via a same-day GP appointment:

> *. . . just like work relationship, stress you know, all that stuff, so I know that that is what has been making it a trillion times worse.*
>
> *P44, young adult, GP*

By contrast, depression seemed to decrease one interviewee's motivation to take action, which may have contributed to the fact that the decision to seek help was taken by someone else on their behalf.

Social deprivation subgroup

Sample characteristics

Sixteen individuals residing in areas of social deprivation were recruited, ranging in age from 32 to 80 years (mean 57 years). The majority of interviewees ($n = 9$) resided in an area with an IMD score of 1 (the highest level of deprivation). All but one interviewee had lived in the city in which we recruited them for > 5 years; the other interviewee had lived in the city for > 1 year. The sample was evenly split between men and women. Interviewees predominantly identified their ethnicity as white ($n = 11$); four other interviewees were Asian/Asian British (Kashmiri, Indian, Pakistani and Afghan) and one was black African. Nine interviewees described themselves as married, three separated or divorced, three single and one widowed. Half of this sample were retired ($n = 8$), with one other describing being both retired and working part-time. Four other interviewees were working full-time or part-time, two were full-time homemakers and one was permanently unemployed.

Of the 16 interviewees, five were recruited following contact with the emergency ambulance service, four were recruited following contact with an ED and seven were recruited following contact with a general practice. More people in this subgroup ($n = 4$) had used an emergency ambulance than in the other subgroups (young adults, $n = 2$; parents, $n = 1$), and one had been taken to the ED by ambulance following a call to NHS 111. Concerns prompting contact varied widely across this sample, and included chest, abdominal or back pain ($n = 4$), sometimes as part of an ongoing problem; illness, injury or confusion of someone they had caring responsibility for ($n = 3$); ear, throat and eye problems ($n = 5$), sometimes as part of a longer-term period of ill-health and other times prompted by health anxiety; anxiety attack; and headache after an injury.

Overview of findings for people living in areas of social deprivation

There was no single dominant driver of interviewees' decision-making about seeking health care. Instead, a number of key drivers were evident, including concerns about the severity of their symptoms, an unwillingness to further delay care-seeking, and their perceptions and experiences of services. The influences of others and of social isolation were also significant drivers for different participants in this subgroup, together with poor mental health and geographical proximity. Most interviewees in this sample had between two and five drivers, with only one interviewee having a single driver evident in their decision to seek care. With regard to making contact with a particular service, a lack of access (either perceived or real) or dissatisfaction with general practice were factors for all interviewees in their decision to contact either the emergency ambulance service or an ED. Conversely, positive experiences of general practice, or negative perceptions about urgent care services such as WICs, were the predominant factors in the decision to access general practice. The influence of others, either within a social network or health-care professionals, could also determine whether or not an interviewee sought help, or where help was sought from.

Concern regarding seriousness of symptoms

Some of the interviewees sought care because they were concerned about physical symptoms. They described unfamiliar, or worsening, symptoms that they believed might indicate a serious problem; these concerns correspond to programme theory 1, uncertainty about symptoms causing anxiety.

Two interviewees who reported concerns about symptoms had sought care on behalf of another person, and, in both instances, programme theory 3, fear of consequences when responsible for others, was clearly evident. One interviewee was a care home manager and her decision-making had been clearly influenced by this role. Although concerned that the symptoms and unusual behaviour of a resident could indicate a more serious problem, she had also been driven to act because she felt a duty of care for the resident and was unwilling to take risks with the health of someone for whom she had responsibility. This was exacerbated by her belief, based on her experience of caring for elderly people, that their health is prone to deteriorating quickly. Another interviewee had sought care on behalf of her teenage daughter, and risk aversion was again apparent. The parent had been unwilling to leave her child's symptoms untreated, and had been reluctant to medicate her child unless advised by a doctor, highlighting the role of confidence in medication use, which is not currently encompassed in the programme theories.

Unwilling to further delay care-seeking

For around half of the interviewees who were living in areas of deprivation, a key driver of seeking care was their unwillingness to tolerate further delays in doing so. As with the young adults group, this driver, which corresponds to programme theory 6, waited long enough for things to improve, was sometimes also linked to programme theory 5, need for immediate pain relief. Interviewees described being in increasing amounts of pain that could no longer be tolerated, and believing that seeking care could provide the urgent pain relief that they needed. Interviewees described using self-care strategies to alleviate their pain, but these were perceived as ineffective. In some instances, it appeared that there had been a reluctance to self-administer pain medication, or that there was a lack of medication knowledge, which had limited their use of medication in the period before seeking care. This limited engagement with medication is not represented in the existing programme theories:

> *You are in so much pain you just think, you are thinking about the pain all the time . . . [the pain] had lasted for 24 hours, and I did say to [call handler at 999], you know, I can't put up with this much longer . . . I thought I've put up with it long enough . . . I thought when is it going to end [. . .] I'm not a tablet person, I've got, if I was to try and put a number of tablets that I have taken in my life [aged 70+ years] and if you want to include Rennies, I think it must be, around the hundred mark.*
>
> *P1, social deprivation, emergency ambulance*

There was some evidence that pain also led to increased anxiety about symptoms, which was aligned with programme theory 1, uncertainty about symptoms causing anxiety, or had a negative impact on the ability to care for family, which was aligned with programme theory 4, inability to get on with daily life, both of which acted as further key drivers of care-seeking. An unwillingness to delay care further was an important driver for some of the interviewees who sought care from the emergency ambulance service or in the ED. This decision was generally related to unmanageable pain and a need to obtain urgent pain relief, but for one interviewee who was experiencing acute mental health symptoms the 999 call was in reaction to needing an immediate response to these symptoms, suggesting a need to extend programme theory 5, need for immediate pain relief, to include a wider range of acute symptoms. This driver did not appear important to those seeking GP care in this sample.

Others' unwillingness to delay seeking care was related not to pain but to an inability to manage the symptoms, or the situation, any longer. One interviewee felt that she had delayed seeking care for persistent symptoms for long enough and had reached a point of wanting to get things sorted that day:

> *. . . so I tell him I got this infection since 3 or 4 weeks. I was suffering, and I got no appointment, so that's why I say it should be (. . .) that's why I want to go appointment because I'm not well.*
>
> *P24, social deprivation, GP*

Perceptions and experiences of health services

The influence of both positive and negative experiences of services was evident in interviewees' decision-making, aligning clearly with programme theory 9, perceptions or prior experiences of services. All interviewees who had made their own decision to access the emergency ambulance service or the ED, rather than doing so on advice from a health-care professional, offered a negative view of some aspect of general practice. Interviewees described trying to make contact with the GP but the telephone was repeatedly engaged, or that they had made contact with their GP but had not been offered care that met their needs or within a timescale that would meet their needs, or that they had not attempted to contact their GP because they believed that an appointment would not be available. This combination of experiences and perceptions corresponded to programme theory 10, frustration with access to a GP, as well as to programme theory 9:

> *I phoned the doctors to ask for some medication, I thought probably they may, might have come to see me 'cause I couldn't get to see them, but they are very reluctant now to come out as well, aren't they? Yes, and probably that would have saved me a visit up to the hospital.*
>
> *P4, social deprivation, ED*

Some interviewees felt that it might take weeks to obtain a GP appointment for a routine problem, and indicated that they would try to obtain a same-day appointment regardless of how urgent they thought the problem was, thereby effectively using 'urgent' appointments for more routine health problems. For one interviewee, this course of action appeared to be endorsed by the GP receptionist as a way to access their preferred GP, illustrating the role of programme theory 8, following advice of trusted others in the decision-making process. The process of trying to obtain a same-day GP appointment was discussed, with many interviewees describing how they needed to call the GP surgery first thing in the morning to do this. For some interviewees this was problematic; for example, if they had taken the decision to seek care later in the day, by which time they believed, or knew, that no same-day appointments would be available. Others found it difficult to call first thing in the morning while feeling unwell:

> *I find it very frustrating, that you have to call the GP surgery at half past eight when it opens, because it's just a free-for-all. Obviously everybody, everybody rings at the same time and it's a little bit like a radio phone-in, you know, the fifth caller wins. The phone is just engaged and engaged and engaged so you have to just constantly keep trying and you can get through at, sometimes at quarter to 9, 15 minutes later and all the appointments have gone and it's the first, it's like you know, trying to buy concert tickets.*
>
> *P26, social deprivation, GP*

Others described an unfamiliar triage system at their GP surgery. Although interviewees were not explicit about whether or not this was a factor in their opting to contact a different service, it may have influenced their decision if they felt that they needed help urgently.

A small number of interviewees expressed dissatisfaction with the care that they received from their general practice, which may have influenced their decision not to contact a GP; this again corresponded to programme theory 9, perceptions or prior experiences of services. There appeared to be a lack of confidence in the care provided, with one interviewee recounting a previous occasion when their GP's inability to make a clinical diagnosis had given them the perception that the GP had not assessed them properly, and another describing inconsistency of care because of the use of locum GPs:

> *. . . at the minute my doctor's pretty terrible. It's kind of, he is an old guy, so I don't know if he is going through health issues, you know he is in his eighties. His wife is absolutely terrible but the less said about that the better . . . they've got a lot of locums in, so I'm again, you can't judge, for me I like to have consistency. You know if I've had a doctor that has known me for a while, it's good for me to see him on a*

> *relatively regular basis, if they've got a locum it's a bit like I don't know who I'm going to be seeing today. They can look at your paperwork and they can look at your medical records but it doesn't feel the same, do you know what I mean? So it's been difficult really.*
>
> *P19, social deprivation, ED*

By contrast, all of the interviewees who had used their GP on the occasion in question identified positive perceptions of their general practice as a key driver of their decision. Interviewees spoke about a range of factors that gave them confidence in, and satisfaction with, their general practice: access to the service, the knowledge and professionalism of their GP, the thoroughness of assessment, the ability to receive reassurance and communicate effectively, and their often well-established relationship with their GP:

> *I think we've got an amazing surgery, I noticed it's been voted one of the top surgeries in last year's poll . . . You can ring every morning at half past 8 and they answer or somebody will always ring you back. If you explain that you can't get in until a certain time they try and fit you in at that time. They're amazing.*
>
> *P15, social deprivation, GP*

> *I am a worrier about my health . . . the guy [GP] was very understanding, you know in this particular appointment, good bedside manner if you will, he was very reassuring. He examined me and said that there was nothing to worry about, but very reassuring, wasn't vague or ambiguous in what he was saying, he was very to the point. There is nothing wrong you know and that sometimes well, all the time, that's what I need to hear if you see what I mean.*
>
> *P26, social deprivation, GP*

Similarly, some interviewees who accessed an ED had a positive view of the service. They felt that an ED was more likely than a general practice to offer what they needed on that particular occasion, such as making a diagnosis when a GP had failed to make one, providing pain relief quicker than a GP could (which links with programme theory 5, need for immediate pain relief), and giving better information than a GP that they were dissatisfied with.

There were also negative perceptions about urgent care services such as WICs, NHS 111 and pharmacies, which appeared to particularly influence the interviewees who were recruited into the study via general practice, suggesting that these people were less likely to use those services when seeking health care. Some interviewees were unaware of these services or the facilities that they provided, but others felt that they were not appropriate for their clinical needs, had been dissatisfied after using them on a previous occasion or had difficulties accessing them.

Influence of others

In contrast to those experiencing social isolation, other interviewees appeared supported and indicated that family members had influenced or supported their decision to seek care or to seek care from a specific service. This influence corresponds to programme theory 8, following advice of trusted others, although this would need to be modified to recognise the varying degrees of influence of people's social networks. The motivation of family influence could be worry about the symptoms, corresponding with programme theory 1, uncertainty about symptoms causing anxiety, as well as with programme theory 3, fear of consequences when responsible for others:

> Interviewer: . . . *why did your family encourage you to make contact with a health service?*
>
> P4, social deprivation, ED: *probably the fact that I live on my own, and that I was in pain. I think that would probably be the reason. And my granddaughter she works with a lot of elderly people anyway do you know what I mean and yes 'oh you should be going . . .'*

> Interviewer: *So if you'd just been left to your own devices and your daughter hadn't intervened, what do you think you would have done, in the next day or whatever?*
>
> P4, social deprivation, ED: *Just carried on probably with the stronger painkillers.*

In other instances, health-care professionals influenced interviewees' course of action. Some of our interviewees had accessed a lower-acuity service prior to contacting the service from which they had been recruited, and around one-third had followed the advice of a health-care professional in then contacting a higher-acuity service. Aligned with programme theory 8, following advice of trusted others, one interviewee described how NHS 111 had arranged an emergency ambulance for them, and another explained that NHS 111 had obtained a GP appointment for them after they had tried unsuccessfully to do so themselves. Other interviewees described being given advice from a health-care professional rather than having a contact arranged. One interviewee's GP suggested that they could call the emergency ambulance service about their problem and another had been advised by an optician to contact their GP. In a third instance, general practice surgery staff advised the interviewee to access their chosen GP by requesting a same-day appointment. Some interviewees found that this advice matched their perception of who they should contact, but both interviewees who were assessed by the emergency ambulance service questioned whether this might be a higher-acuity service than necessary. None of our interviewees received advice from a health-care professional to attend an ED.

Social isolation

Although for some interviewees in this sample other people had an impact on their decision-making, around one-third appeared to experience varying degrees of social isolation or a lack of support, aligning with programme theory 7, stressful lives, difficulty coping. For some, this was a key driver of why they sought care, but more often it was a secondary driver of their decision-making when seeking care on that particular occasion. Lack of support related to a general lack of support in their lives from informal/formal networks, rather than a lack of support specifically at the time of the incident (e.g. being alone at the time or unable to contact a usual provider of support). Those describing a general lack of support tended to be older, ranging in age from 64 to 80 years. Two of these interviewees said that they were the main carer for their spouse, with little or no extended family input, whereas the others lived alone or in sheltered housing. In common, they described having no extended family, or none living nearby, or a lack of positive interaction with family. Some identified a network of people around them, such as neighbours, but did not describe these people in terms of friendship or support. In some of these individuals the interviewer perceived a sense of loneliness and a desire to connect during the interview, which had possibly been a reason that they had agreed to take part:

> *[I have] two [sons] . . . they don't keep in touch, I've not seen them since the divorce [10+ years ago] . . . I phoned them, they never reply, they don't reply, they don't reply to texts or anything, I don't even know if they have got the same number . . . I said I may as well text to the brick wall next door to me, because I'm getting the same response, if you need me at any time, I'm there and I've never heard, very sad really.*
>
> *P1, social deprivation, emergency ambulance*

The lack of support or the social isolation appeared to contribute to some interviewees' inability to manage their symptoms any longer, corresponding to programme theory 7, stressful lives and difficulty coping. This programme theory was also evident in the practical impact of isolation for one interviewee, who did not have anyone to offer them transport to the ED and, without having the financial means of paying for a taxi, going to the ED by ambulance was seen as the only option.

Some interviewees seemed to perceive that, although a degree of informal or formal support was available, this could not provide the advice or kind of support needed. One interviewee felt that they were more knowledgeable about health than those in their support network, and another believed that formal carers would be unable to help within the time frame required, the latter belief potentially aligning with programme theory 9, perceptions or prior experiences of services.

Poor mental health

Although the primary reason for seeking care related predominantly to physical problems, existing mental health problems were mentioned by half of the sample. Interviewees spoke openly about their mental health. They described generalised anxiety, specific health anxiety, separation anxiety, panic attacks and agoraphobia, many of which were longstanding problems for which professional care was being accessed. Mental health problems, which could be understood as an aspect of programme theory 7, stressful lives and difficulty coping, appeared to influence decision-making in a number of ways. Generalised anxiety could contribute to the urgency required when seeking help, where, for example, the onset of a physical symptom could prompt an underlying anxiety that escalated the need to be assessed by a health-care professional urgently. The duration and the nature of symptoms could also trigger or exacerbate health anxiety, prompting a need to seek care to receive reassurance from a health-care professional that the problem was not serious. One interviewee, against the advice of her GP, undertook a symptom-related internet search before she sought care, which further added to her health anxiety; the information gathered during the internet search led her to believe that the physical health problem could be more serious than she had initially perceived. For some, although they made light of the situation, it was clear that the physical symptoms instilled a genuine fear about the severity of the problem, aligned with programme theory 1, uncertainty about symptoms causing anxiety:

> *I just thought I don't want to die [laughs]. I don't know, maybe I was taking it a bit too far, but I was, I've never had anything like this before. So when I have spoken to people afterwards they said 'oh they've had swollen lymph when they have been ill this that and the other', but me I was like 'damn, I don't like this' you know . . . it was scary for me.*
>
> *P19, social deprivation, ED*

In the case of one interviewee who exhibited significant anxiety in the interview, the relationship between key drivers was particularly complex, with social isolation appearing to feed a general anxiety, and a history of serious health problems being associated with health-related anxiety and a fear of death. The onset of an apparent minor health problem exacerbated these beliefs and the need for urgent help.

When mental health problems were described, care was accessed from all three services in our study. Interviewees who opted to seek care from a GP described having a positive and established relationship with their GP (one interviewee described the relationship in terms of a friendship) or perceived that only a doctor had the clinical skills that would allay their concerns. Their trust in their general practice was apparent, and the influence of these perceptions corresponds closely to programme theory 9, perceptions or prior experiences of services:

> *I'd had a problem with my throat I'd sort of convinced myself that I had a little lump, my throat looked abnormal when I looked in the mirror. I'd had a sore throat and I was checking around and I thought 'oh that doesn't look right', so then the way my brain works is, I automatically need some sort of reassurance, obviously the doctors are the best people to do that, professionally. Knowing how I, what I'm like with my worrying about my health, I feel like I instantly need some, some form of reassurance that could only really come from [the GP].*
>
> *P26, social deprivation, GP*

Geographical proximity to a service

Although not a driver for most, two interviewees described the proximity to a particular service as an important factor in their decision to access it. This factor, which is not represented in existing programme theories, often worked in combination with other drivers. For example, one interviewee described needing to obtain pain relief quickly and, as they lived close to the ED and believed that the ED was an appropriate service for their care, considered themselves to be in too much pain to travel to a service further away. The link between proximity and programme theory 5, need for immediate pain relief, is clearly evident here. Most interviewees lived near a general practice. One interviewee described the

general practice as being located within 1 minute's walk from home and described how they booked appointments in person, rather than over the telephone, such was the convenience of the location. The proximity of the service, combined with these other factors, were significant drivers of why GP care was sought.

Summary of drivers of seeking care from specific services across the three subgroups

We focused on why people sought care from different services across the three subgroups.

Among the eight interviewees who were recruited following contact with the emergency ambulance service, the key drivers were concern about symptoms or an inability to tolerate symptoms any longer; problems with gaining timely access to a GP; and the influence of others (NHS 111 advised calling 999, a GP advised calling 999, or family made the decision to call 999). Other influences included positive perceptions about the ambulance service; a lack of financial means to be able to travel to the ED; a lack of knowledge of or confidence in lower-acuity services; anxiety prompted by the episode occurring overnight while the participant was alone; or an indication that the decision-maker had a general impatience and intolerance of waiting.

Among the 21 interviewees who were recruited following contact with an ED, most drivers related to negative aspects of general practice: a perceived inability to access timely GP care or dissatisfaction with GP care. In addition, EDs had characteristics that many interviewees sought, including speed and range of clinical facilities, or were perceived to be able to resolve their problem. Although the familiarity with, or proximity to, the ED was not a key driver, it was an influential reason for seeking care there. Another key driver was the influence of others, including being advised by service providers in general practice, NHS 111 or people in their social network.

All of the 19 participants recruited following contact at a general practice had positive perceptions of general practice, including having a good relationship with their GP, having good access to GP care in terms of the ease with which they could obtain a same-day appointment, the proximity of the practice, having a desire to obtain reassurance from a professional, and having the sense that it was appropriate to contact a GP with their particular health problem. Following the advice of someone else, such as staff at general practice, NHS 111, an optician, and family and friends, was a key driver of seeking care from a GP.

Discussion

Summary of findings

There was some commonality across the subgroups with respect to decision-making about seeking emergency and urgent care, as well as distinct areas of difference. As might be expected, concerns about symptoms were prevalent in all subgroups. However, the groups differed in the factors that prompted or exacerbated these concerns. Parents specifically placed the child at the centre of this decision-making, in relation to either their sense of responsibility for the child or their lower threshold for tolerating risk concerning the child's health. Seeking professional care eased parents' burden of responsibility and met a need for reassurance that was a clear and dominant driver in this subgroup, with other factors not having the same amount of influence.

Among young adults and those living in areas of deprivation, concerns about symptoms were also present, but these were driven by, and one of a more diverse range of, factors that influenced their decision. An unwillingness to delay seeking care was also expressed more frequently in these groups than in the parent sample. This could be driven by a range of factors, including an inability to manage the symptoms, a need for urgent pain relief or, particularly among young adults, a concern about the impact of the symptoms on their functioning, probably reflecting the higher proportion in this group who were working or studying. Poor mental health also influenced decision-making for young

adults and those in the social deprivation sample, and social isolation was another factor for some in the latter group. Both of these factors may have had an impact on interviewees' coping capacity and subsequent decision-making.

All subgroups were heavily influenced in their decisions to make contact with specific services by perceptions or previous experiences of health services. Influences could be positive (i.e. prompting a choice to contact a particular service) or negative (i.e. choosing not to access a specific service). The influence of other people was also apparent in all subgroups, more so on the choice of service rather than on the decision to seek care. This influence could come from health-care professionals, but was most frequently from interviewees' social networks, where family members', friends' and colleagues' perceptions of services or concerns regarding the seriousness of the symptoms could direct or support help-seeking decisions.

Links to programme theories

Evidence of all 10 programme theories was found in the interviewees' accounts and, mirroring the findings discussed above, some were present more frequently and to varying degrees across the subgroups (see *Appendix 6*, *Table 18*). Reflecting the areas of commonality identified above, three programme theories featured strongly in all three groups: programme theory 1, uncertainty about symptoms causing anxiety, programme theory 8, following advice of trusted others, and programme theory 9, perceptions or experiences of services. Parents' particular concerns regarding their responsibility for their child and lower threshold of concern for their child's health are apparent in the much more frequent evidence in this subgroup of programme theory 3, fear of consequences when responsible for others, and programme theory 2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety. By contrast, programme theory 6, waited long enough for things to improve, and programme theory 7, stressful lives and difficulty coping, are more apparent in the young adult and social deprivation subgroups, the latter perhaps reflecting the impact of mental health problems and social isolation. Young adults' concerns about the impact of symptoms on their ability to function are evident in the more frequent occurrence in this subgroup of programme theory 4, inability to get on with daily life. The number and range of programme theories in many of interviewees' accounts also highlights the complexity of individuals' experiences. Only seven interviewees showed indications for fewer than four programme theories and 10 interviewees had evidence of six or seven of the theories.

Our findings add new insights to the existing programme theories, indicating areas where these need to be refined or extended to more accurately reflect the diversity of experiences in the data (*Table 6*). Interviewees' accounts also identify further drivers of their decision-making that are not reflected in the existing programme theories, particularly in relation to the influence of the timing of the event and the proximity of services, which suggests that there is a need for additional programme theories.

Links to existing theories

A number of the existing theories and models explored in the WP1 review are evident in the interview findings. For all three subgroups, concern about the seriousness of the symptoms links clearly with Leventhal's[58] self-regulation model, which recognises the importance of both cognitive and emotional dimensions of the experience of illness. In relation to the cognitive dimension, all of Leventhal's five domains of illness, namely identity (label/name), consequences (including impact on function), timeline (including duration), cause and controllability, can be seen to varying degrees in many aspects of interviewees' accounts of their symptoms. Uncertainty about the meaning of symptoms, which was a frequent concern for interviewees, has been identified by Mishel and Braden[59] as having a significant impact on help-seeking; they also identify the role of social support in coping with uncertainty. All three subgroups frequently identified the influence of others on their decision-making, and Pescosolido's[71] network episode model, recognising both the direct and the indirect impact of social networks, is evident in our findings. The role of recursivity[95] and candidacy[74] is also evident in this context.

TABLE 6 Refinement of the programme theories based on the interviews

PT developed in WP1	Suggested refinements or proposed new theories from WP2	Suggested revisions
1, uncertainty about symptoms causing anxiety	Degree of vulnerability of person – age – or is this PT2? Or someone else's uncertainty who made the decision? Need for validation – is this PT1?	Uncertainty about meaning and seriousness of symptoms causing anxiety
2, heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety	General beliefs about children's health quickly deteriorating – or is this PT8 refined? Similarly, elderly people can decline quickly Previous symptoms – chronic conditions or recurrent illness – not exactly trauma but increases concern. Also anticipate return of symptoms if run out of medication	Heightened awareness of risk to health as a result of personal experience or knowledge causing anxiety
3, fear of consequences when responsible for others	Distress at seeing the person they are responsible for suffering Duty of care in professional role	Responsibility and/or care for others causing distress and fear of consequences of not acting
4, inability to get on with daily life	Anticipated impact on function – trying to avoid a problem Impatience – less well-defined tasks – or does this go in PT6?	Concern about actual or anticipated impact on daily activities/functioning
5, need for immediate pain relief	Widen to include other acute symptoms (e.g. panic attack/mental health symptoms)	Need for immediate relief of intolerable/unbearable symptoms (including pain)
6, waited long enough for things to improve	Help-seeking so far has not produced desired outcome so try going somewhere else (e.g. GP has not resolved it) Impatience, intolerance of waiting Tipping point	Unwillingness to continue current approach to managing symptoms (waiting/self-care/help-seeking) due to lack of resolution of the problem
7, stressful lives	Needs to include lack of access to resources (e.g. car, support). This could link to time of day in some cases Wider lack of social support, not necessarily incident-specific – impact on decision-making Ongoing health worries increasing concern Own illness affecting coping capacity and managing that of someone else Mental health – additional stress. Can also change perception of seriousness PT1 if have health anxiety Stressful work triggering symptoms and also need for easy access to help Lack of money – affects choice of service	Reduced coping capacity due to physical and mental illness, stress and/or lack of access to resources

TABLE 6 Refinement of the programme theories based on the interviews (*continued*)

PT developed in WP1	Suggested refinements or proposed new theories from WP2	Suggested revisions
8, following the advice of trusted others	Influence of social networks and norms Support, encouragement and suggestions from peers, rather than direct advice Use of internet to obtain health advice and information	Directly or indirectly influenced by the advice or support of others, including social networks, health-care professionals and internet sources
9, perceptions or prior experiences of services	Can include use of GP for urgent care due to positive experience reinforced by reassurance from health professional that previous use was right Or others' perceptions – link to PT8 Awareness of other services – could expand PT9?	Perceptions, prior experiences and/or awareness/knowledge of services
10, frustration with access to a GP	Need to take account of the fact that some of them did go to GP May have repeatedly tried to get appointment, or cannot wait long enough for routine appt	Frustration with inability to access an appropriate GP appointment
	Location – potentially links to cost or other resource issues – PT7 at least sometimes	Proximity or ease of access to particular services
	Timing, e.g. Friday, late at night – this links to PT7 and lack of support Later in the day – no GP appointments left, or perception of PT9	Timing of event creating perceived, actual or anticipated unavailability of alternative services
	Limited engagement with/confidence in medication use	Lack of knowledge of and/or confidence to use medication to self-manage symptoms

PT, programme theory.

For parents and others in a caring role, the sense of responsibility can be understood partly in relation to Beck's[70] work on the Risk Society, where blame is avoided by acting responsibly, including in relation to health. Dingwall and Murray[75] also highlight how children are considered as a different category of patient, with an accepted lower threshold for help-seeking. For those experiencing a range of stresses, which is seen in both the young adults and the social deprivation groups, including poor mental health and social isolation, Antontovsky and Sagy's[89] work recognises how a lack of 'generalised resistance resources' can have an impact on people's ability to cope with additional challenges, including illness. The overall complexity of drivers, including both individual and contextual factors, is recognised in Andersen's[33] model of health-care utilisation, with later iterations increasingly acknowledging many of the social and structural influences on decision-making evident in interviewees' accounts.

Link to wider literature

The clear correspondences between our findings and the programme theories developed from the realist review inevitably mean that there is a significant overlap with the literature on which the programme theories are based. In particular, our findings support existing qualitative evidence that highlights the influence of uncertainty about symptoms, fear of consequences when responsible for others, need for immediate pain relief, the impact of stressful lives, the advice of others, and perceptions and experiences of services. More recently published work suggests further overlap.

Although focusing on different population subgroups, Pope *et al.*'s[22] research found that perceived risk, anxiety and a need for reassurance were common motivations for accessing urgent care services. Similarly, Pope *et al.*[22] also found a heightened sense of risk associated with children and babies, corresponding to Kai's[117] work, published over 20 years ago, which describes parents' experiences of managing young children's acute illness. His findings identified parental worry about the nature of symptoms, the threat that these symptoms might pose to their child's health and the responsibility that parents felt to keep their child safe, which mirror the accounts of parents in our study. Given that we found a number of qualitative articles focusing on children using GP out-of-hours services and paediatric EDs in our review, we reflected on our additional contribution to knowledge for this subgroup. We feel that we more clearly identified the difference between people's behaviour with regard to their own health and their behaviour with regard to the health of their child, how problems with children's ongoing health creates an anxiety and unwillingness to wait, how a parent's own illness can have an impact on their coping capacity, and the influence of family on decision-making. In addition, in the literature there is a general perception or experience of not being able to access GP appointments or of a dissatisfaction with GPs, but our inclusion of people accessing same-day GP appointments shows the ease of access for some parents of young children.

The evidence from the realist review showed how a range of social and psychological stressors could have an impact on individuals' help-seeking, reducing their coping capacity and increasing their use of emergency and urgent care. Although poor mental health was identified as one of these stressors, the findings from our interviews suggest that this specific issue was often more dominant and was frequently a significant driver of seeking care. Although interviewees' overall physical and mental health was not explored routinely during the interviews, a number described mental health symptoms for which they were being treated or seeking treatment through their GP, and a very small number reported more severe mental health problems. It was clear that, even for those whose problems were less severe, their symptoms or associated reduced coping capacity were frequently a factor in their help-seeking, although the problem for which they were seeking help was frequently a physical one.

Recent research supports our findings, identifying that those with a mental health diagnosis (classified as mild, moderate or severe) are more likely to use EDs than those without a diagnosis, with more severe problems associated with more frequent visits.[118] Other studies from the USA and Australia identify increases in both the absolute numbers and the proportion of ED use that were linked to mental health problems,[119–121] particularly in adolescents/young adults[121–123] and those with lower incomes.[119] Although most of this use is for problems requiring urgent attention, Hsia and Niedzwiecki[124] also identified that 6.8% of all 'avoidable visits' to US EDs were for mental health conditions, and that mood disorders resulted in the highest proportion of avoidable visits by diagnostic grouping. In relation to the emergency ambulance service, two recent studies in the UK[125] and Australia[126] identified that approximately 10% of calls are related to mental health problems. Both studies emphasise the need for alternative solutions, particularly more community-based provision, transportation level of < 50% for those with less severe problems[126] and high levels of re-attendance.[125]

Mental health problems have also been found to have an impact on levels of primary care use. Lockett *et al.*[127] found that people with anxiety, depression or bipolar disorder were more likely to use primary care in New Zealand but were also more likely to report having unmet needs and a less positive experience with their GP. Even among those without a diagnosed mental health problem, self-perceived stress has been found to increase use of primary care, with higher stress levels associated with greater numbers of people having visited their GP in the past year in a Danish population study.[128] Notably, stress was also associated with greater use of out-of-hours services and, among those with multimorbidity, with decreased use of chronic care services. This reflects the findings from our interviews, suggesting that poor mental health can have am impact on help-seeking behaviour, even when not at a clinically recognised level.

Convenience has been identified as a driver of navigating emergency and urgent care services.[22,28] For example, an ED may be perceived as offering more availability or accessibility. Although there was some evidence of this in our study, convenience did not appear to play a significant part in decision-making among our participants. It is possible that interviewees did not want to appear to be inappropriate users of health care, but the researchers also perceived that convenience did not generally seem to be an important consideration. A far stronger driver of accessing ED services in our sample was the perceived lack of access to primary care services. This is widely supported in the existing research literature, has been shared in a patient perspective editorial[34] and was evident in the recent NHS GP Patient Survey,[129] in which around one in five patients (21.6%) reported that they had tried to contact an NHS service in the previous 12 months when they had wanted to see a GP but could not because their general practice was closed.

Strengths and limitations

A key strength of this part of the study is the collection of in-depth qualitative data eliciting drivers of decision-making among three population subgroups that were identified as having a tendency for 'clinically unnecessary' use of services. The inclusion in the study of three service settings, in particular same-day GP appointments, also extends the existing literature in this area, which has until now focused largely on ED use, with limited material relating to use of emergency ambulance and GP services. The process of data analysis, particularly the use of the principles of IPA, helped us to identify the complexity of the decision-making process. The findings highlight how, rather than being prompted by one single driver, an individual's decision both to seek care and to use a particular service to obtain it is influenced by the interaction of multiple drivers. Providing insights into this complexity is vital in understanding and addressing 'clinically unnecessary' use.

We encountered a number of difficulties with recruitment that had an impact on the composition of the final sample. Most significantly, despite extending recruitment by a number of months, we recruited considerably fewer participants from the ambulance service than originally planned. Study set-up meetings led us to feel confident that we could recruit our relatively small sample from the large pool of patients calling the ambulance service and receiving telephone advice only. Initial engagement by staff at the ambulance services was also encouraging, but lessened in one service over time. Staff reported that pressures of demand on the service (we attempted to recruit between the months of November 2017 and June 2018) were a barrier to recruitment, and the lack of a researcher present regularly on site is also likely to have affected engagement with the study. To address the lower levels of recruitment via this route, we also recruited a few patients at the ED who had been conveyed by ambulance but whose transportation had been considered unnecessary by ED staff. We also encountered difficulties in recruiting in both the ED and the GP setting in Wolverhampton and, because of time pressure, had to recruit more than half of the overall sample in Sheffield. As a result, it has not been possible to make comparisons between two operationally different emergency and urgent care systems.

The study recruitment processes meant that the majority of participants were recruited between 09:00 and 18:00, with recruitment from only the emergency ambulance service occurring 24/7 (i.e. 24 hours per day, 7 days per week). An attempt to recruit at the ED during the weekend was not successful, and we did not attempt to recruit from this setting overnight. Therefore, there may be some differences between our interviewees and those using the services at other times of the day. For example, the lack of availability of other services or a reduction in social support at night may have an impact on the levels of anxiety that drive help-seeking.

Participants in the qualitative research were not aware that they had been included in the study because they had been identified as 'clinically unnecessary' users of a health service; our interest was in the decision-making that led to this contact. This approach was recommended by PPI members and approved by the ethics committee. To have been explicit about this with participants at the recruitment phase may have had an impact on the study in two ways. First, it may have had a negative impact on recruitment if potential participants felt that they had been perceived as using health services inappropriately.

Second, if recruited participants felt that they were being labelled as 'clinically unnecessary' users, this may have affected their openness during the interviews, and, subsequently, the integrity of the data. The presence of the interviewer and the topic being discussed may have affected interviewees' responses, prompting them to offer more socially acceptable reasons for their decision-making to avoid being judged. This may have been particularly evident for parents wanting to present themselves as 'good parents' who were doing the 'right thing' for their child. Although this cannot be ruled out, the researchers did not feel that it was an issue during the interviews.

Interviewees were recruited for their membership of a particular subgroup, but a significant number also belonged to one or even both of the other subgroups. For instance, eight young adults were also living in areas of deprivation, four of whom were parents. This means that there is some overlap between the subgroups. However, analysis was conducted both on those recruited to a particular subgroup and on those who had the characteristic of that subgroup, and this was not found to significantly influence the findings.

Implications

The programme theories identified in WP1 were clearly apparent in the three subgroups, and we refined some programme theories based on the interviews reported in this chapter. The drivers were largely similar across the subgroups but there were differences between subgroups in the strength of the drivers. This implies that potential interventions may need to be different for population subgroups.

Chapter 5 Interventions to address drivers of 'clinically unnecessary' use

Aim

Our aim was to identify patients' views about potential interventions to reduce 'clinically unnecessary' use of emergency and urgent services. The term 'intervention' in this context means any initiative that could change decision-making about health service use, including reconfiguration of or changes to the delivery of services as well as campaigns to increase knowledge and awareness of services and service use.

Methods

The design was a focus group study with patients identified as 'clinically unnecessary' users to identify, discuss and prioritise potential interventions. We held three focus groups, one with each subgroup. We supplemented findings from the focus groups with analysis of recommendations for service improvements made by interviewees during individual interviews (see *Chapter 4*). We reviewed these findings in the light of recommendations for interventions made in the qualitative literature included in the realist review (see *Chapter 3*).

Sample

Owing to logistical challenges with recruitment and organisation, we recruited focus group participants in Sheffield only. We considered potential participants eligible if they had been identified as 'clinically unnecessary' users of an urgent or emergency care service and were a member of one of the three subgroups identified for the interviews: parents of young children, young adults and people living in areas of deprivation. We used two approaches to recruit participants. First, as the discussion about interventions during the interviews had been very brief, we invited the interviewees to take part in the focus groups. We approached all of the interviewees to determine their interest in taking part in a focus group. We sent participant information sheets and consent forms to those who expressed an interest (see the project web page: www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). Once a date and time had been set, we contacted the participant to confirm their availability and attendance. Second, to broaden the range of perspectives, we also sought to recruit additional patients considered to have made 'clinically unnecessary' use of an ED. This was done differently depending on the subgroup, as outlined below. We aimed to recruit a total of 24 participants (eight in each group), but owing to recruitment difficulties we were able to recruit only 15 participants.

Additional parents were recruited at Sheffield Children's Hospital. This was done by a researcher (LBE) attending the hospital on 4 days, totalling approximately 19 hours. Additional people in the young adult and social deprivation subgroups were recruited at the Northern General Hospital ED, with recruitment for both groups taking place at the same time. This was done by a researcher (JL) attending the hospital on 4 occasions for a total of approximately 25 hours.

Data collection

To develop the topic guide for the focus groups, two researchers (EK and LBE) reviewed the interview transcripts, particularly the responses to a concluding question about the changes in service provision that participants would like to see to make it easier to access health care (see the project web page: www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). The topic guide was structured in two sections. In the first section, questions encouraged a general discussion about positive and negative perceptions and experiences of the emergency ambulance service, the ED

and the GP. In the second section, participants were invited to offer and discuss potential reasons for using particular services and to suggest interventions or alternatives that might help individuals to decide to use a different, lower-acuity service or to try self-care. In this section, the focus was on participants' views of how others in their subgroup (i.e. parents of young children or young adults) might respond rather than on their own individual behaviour. The exception to this was the social deprivation group, as noted below. Focus groups lasted approximately 2.5 hours, including a break for refreshments.

The parents focus group was held at a university building on a weekday morning; this time was based on a consensus from potential participants and to allow parents to take older children to school if necessary. The young adults focus group was held at a university building in the late afternoon/early evening of a weekday; this time was selected to suit the participants' commitments, primarily work or study. The focus group of people from socially deprived communities was held in a university building on a weekday morning to suit the participants' availability. As participants were not aware that their inclusion was on the basis of their IMD score, the discussion explored participants' own views and their perceptions of the wider population, rather than asking specifically about people living in socially deprived communities.

Two experienced female researchers facilitated each focus group (EK and JL/LBE). Refreshments were offered on arrival, and participants completed and signed consent forms (see the project web page: www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). One researcher (EK) facilitated each focus group, keeping the discussion on track and probing further when appropriate. The other researcher (JL/LBE) supported this process by taking notes and joining the discussion if she felt that a particular aspect of the discussion could be expanded on. The discussion was digitally recorded. Detailed notes were made during each focus group about the interventions that participants highlighted during discussion. Towards the end of discussion, these interventions were shared with the group, who were asked if they could prioritise the interventions that they considered were most likely to change decision-making among those in their specific subgroup.

Data analysis

Following each focus group, the assistant moderator created a document based on the notes made during the discussion, in particular the specific positive and negative points relating to each service: ED, GP and out-of-hours provision, WIC, emergency ambulance service, NHS 111 and pharmacies. In addition, the interventions identified and prioritised by the focus group participants in the second part of the discussion were written up and, as the purpose of the focus groups was to identify specific interventions that could change decision-making, this list of recommendations and priorities formed the primary data for the analysis. These topics formed the themes for the analysis, and, owing to the nature of the data, formal coding within NVivo was not undertaken. Each focus group recording was also transcribed verbatim and checked by a member of the team prior to analysis. The transcripts were read by the researchers and used to support or challenge the analysis of the primary data, and to identify illustrative quotations. Analysis was undertaken by two researchers (EK and JL), initially for each focus group and then across the three groups, exploring the similarities and differences in their recommendations and priorities in relation to each service and other wider interventions. This information was then used to identify issues and recommendations specific to each service, and in relation to education, awareness and support.

Inclusion of data from interviews

During the interviews (see *Chapter 4*), interviewees referred to difficulties that they experienced or perceived in using different health services. They also identified specific changes in service provision that might make it easier for them to access health care differently. Although this did not specifically focus on interventions to encourage interviewees to change their choice of service, it did identify barriers to using particular services that could influence their decision-making process. All data relating to this topic were coded in NVivo to an overarching code of 'Interventions which may have changed the

decision-making', with a number of specific subcodes also identified. Researchers reviewed this code to identify areas of concern, with the data divided by subgroup and by service. Twenty-four participants made one or more recommendation: 10 parents, nine young adults and five interviewees from socially deprived communities. These recommendations were used to supplement the data from the focus groups rather than be considered as a separate source; there was considerable overlap in the findings at least partly because the majority of focus groups participants had also participated in the interviews.

Reporting guidelines

We completed the COREQ reporting guidelines.[116]

Findings

Five parents took part in the first focus group; three had taken part in an interview and two had been recruited specifically for the focus group. Six young adults took part in the second focus group; four had taken part in an interview and two had been recruited specifically for the focus group. Five people living in socially deprived communities were booked to attend the third focus group, but one did not arrive and could not be contacted, so four people took part in the discussion. Three had taken part in an interview and one had been recruited specifically for the focus group. Sociodemographic details are reported in *Appendix 7*, *Table 19*.

Parents of young children subgroup

Recommendations made by this group were tailored more to their particular situation (i.e. as parents) than those that were made by the other two groups, and often focused on child-specific service changes.

Changes in service provision

The group viewed improvements to GP provision as key, which was also echoed in the interview data. **Better availability of GP appointments** was a key priority, with interview participants identifying a number of specific suggestions, including more weekend, early morning and evening appointments, quicker access to appointments for non-urgent problems (i.e. within a few days rather than a number of weeks) and the ability to book appointments further ahead (e.g. 2–3 months). Focus group parents also considered that there should be **prioritisation of urgent appointments for children,** a point echoed by interview participants, who variously suggested specific appointments, telephone calls or drop-in sessions for children. Six-monthly GP appointments for children were also suggested, providing regular opportunities to discuss health concerns, gain knowledge and reassurance, and build a helpful relationship with an expert in child health.

In relation to accessing appointments, the group described diverse experiences, with some reporting that their GP 'always sees my children on that day' [focus group (FG) P3] and others describing the frustration of repeatedly trying to book an appointment:

> *They tell you to call at 8:30 for my GP. You call, by the time it's 9 o'clock they'll be like 'Oh sorry, we're out of . . . appointments' and then, they're all 'Call in tomorrow' you do the same thing for the whole week and then I'm like 'Oh yeah . . . can I book it for next week?' and they'll be like 'Oh no, there's no appointments, call in on the day'. It's just always 'Call in on the day' [agreement from group] and you never find one.*
>
> *P4, parent, FG*

Interview participants echoed these frustrations, which were heightened by the fact that the phone-in time was often when they were taking children to school. Suggestions for improvement included an online or app-based booking system for same-day GP appointments and/or call-back requests, and the ability to book an urgent appointment for the next day rather than have to telephone repeatedly each morning.

Recognising that parents' sense of urgency, combined with the lack of access to GP appointments, may prompt them to use the ED, **locating a GP service at the ED** was recommended, allowing non-urgent problems to be dealt with via another route, which would also reduce demand on local GPs. The specialist skills available in the ED were also seen to be a significant driver of parents' decision-making, particularly in the context of there being a children's hospital in the city, with one parent observing that 'if your kids are seen by a paediatrician, a specialist (. . .) I feel more you know, more safe' (P1 FG). Therefore, the group recommended introducing **specialist GPs for children**, based either in a general practice or in a WIC, suggesting that parents' greater confidence in the skills of these professionals could reduce their perceived need to use the ED. This suggestion was also made by an interview participant who did not take part in the focus group, and this seems to have been based on their experience in their country of origin. Interview participants also highlighted the need for better information about how to access urgent GP appointments out of hours or when no same-day GP appointments are available, together with increasing out-of-hours capacity to avoid attending an ED because of lack of GP appointments.

Focus group parents identified a number of other service changes that could potentially reduce the pressure that GPs were under. An increased role for pharmacists was suggested, including offering follow-up appointments. Some parent-specific changes to the WIC were also identified, many of which focused on minimising the length of the visit when bringing young children for treatment. These included having a **priority system for children**, having a **separate WIC for children**, reducing waiting times and introducing an appointment system to avoid the need to sit in a waiting room with an ill child for long periods. The location of the current WIC was seen as problematic, with the group suggesting that a more child-friendly location, and the introduction of local centres rather than one central service, could encourage greater use. Interview participants also recommended an increase in the number of WICs, enabling people to drop in and guarantee being seen at a convenient location.

More broadly, the group saw **increased support, particularly for first-time parents,** as essential, including **more proactive engagement by health visitors** and other community services, and offering parenting lessons in schools. The group also felt that there was a need to improve patient experience across the services and highlighted that a specific priority should be to **offer language assistance at other services apart from the ED**, as this could be a significant determinant of where to seek help:

> *. . . I don't think they had anybody that would translate at certain GPs but in the A&E there's always somebody (. . .) 'cause there's Somali doctors and there's so many different doctors and nurses, so I think that's why A&E's more helpful.*
>
> *P4, parent, FG*

Education/awareness

Improving publicity about the alternatives to emergency and urgent care was seen as important, including promoting the GP out-of-hours service; encouraging the use of NHS 111 and emphasising its value in increasing parents' health knowledge; and highlighting the knowledge, training and skills of pharmacists and their role in offering advice:

> *Explain what advice and what they [pharmacists] can actually offer advice on. Do they know about rashes? Do they know about different temperatures? Do they know about the actual symptoms of what my child is getting? Or do they – I don't really know what they can fully offer, apart from just general advice on 'Do I use this medicine or do I use this medicine?'*
>
> *P3, parent, FG*

Promoting the services offered by family centres was also seen as important in facilitating access to additional resources to help parents gain the skills and confidence to manage their children's health.

Young adults subgroup

Changes in service provision

The key service priority identified by this group was the need to significantly **improve mental health provision,** a concern that may have been driven by at least half of the group having experienced significant mental health problems, as well as the prevalence of such issues in their friendship groups. Improvements in the range, quality and speed of access to mental health services were seen as important aspects of this, with the current gaps in provision leaving people with no option but to use other services, particularly at times of crisis. Lack of appropriate mental health support was also seen to have an impact on decision-making about physical illness, making them likely either to inappropriately delay seeking help or to 'panic and try to grab out for every service' (FG P12). In this context, the group suggested that **a specific mental health ED** should be introduced to provide urgent specialist support and advice, significantly improving patients' experience and reducing pressure on the main ED (which patients are currently advised to use in crisis):

> *. . . it doesn't seem like maybe the best use of the time for the people in A&E because they can't really do anything really that practical to help, but also the person who's feeling that way to be sat in there for how many hours to just go home again at the end of it.*
>
> *P10, young adult, FG*

Better support for mental health distress was also highlighted by interview participants, who emphasised the need to improve the quality and speed of access to mental health services, and how the current lack of provision contributed to increased use of the ED. The need for a more sympathetic response from clinical and reception general practice staff over the telephone was also suggested, together with clearer information on how to access immediate support.

Reflecting the concerns raised by parents, **easier access to GP appointments** was highlighted as important in encouraging people to reduce their use of the ED, with more availability of appointments outside working hours (i.e. early mornings, evenings and weekends) being a particular issue:

> *I think my GP does one day, where it's like a late opening I think. But that's no good if they're all booked up, so then it's like you're going back into the week cycle aren't you, waiting for the next appointment.*
>
> *P13, young adult, FG*

Interview participants also focused on the need for improvements to GP provision, including having extended opening hours, more same-day appointments and shorter waiting times for non-urgent appointments, introducing drop-in sessions and using a triage system to prioritise urgent cases. A text-reminder system for medication reviews was seen as valuable in preventing urgent appointments.

A number of uses of online technology were proposed by this focus group. One GP-related initiative was the establishment of an **online database of GP appointments** available across the city, which would allow people to travel to another practice to access a convenient appointment:

> *(. . .) particularly if younger people are more able to travel around that if they could somehow make, sharing of notes a little bit easier, and maybe people could, opt to travel to get an appointment, rather than going to their same GP and also it prevents, empty appointments going wasted [agreement].*
>
> *P12, young adult, FG*

Other proposed online interventions included improving the accessibility of GP services by using Skype™ (Microsoft Corporation, Redmond, WA, USA) or online GP consultations, although not all of the interviewees favoured this option. Views were also mixed on other internet-based consultation

services, particularly in terms of potential health and privacy/confidentiality risks. However, extending NHS 111, a service known to be credible, to include an online chat facility was seen as having the potential to increase use of this service, particularly among younger people, although the detailed questioning process was identified as a barrier by some.

Young adults taking part in interviews also made suggestions relating to other services, although these were a small proportion of the total. As in the parents group, increasing the number of local WICs was seen as important in improving access to this service. Additionally, co-locating GP and ED provision was recommended, which would enable people to be readily transferred to the service most appropriate to meet their needs.

Education/awareness

The importance of education and awareness raising was a key focus in this group, with significantly more recommendations relating to this rather than to changes in service provision. There was a strong feeling that many people, including young adults, were unaware of the services available and what these can offer, thus making appropriate decision-making difficult. In particular, the group considered that **raising awareness of the range and scope of alternative services**, including NHS 111, MIUs, WICs and pharmacies, was a key priority:

> *I think a lot of the problem is people don't know these things exist, or don't know what they're for, and so they know A&E exists, they know something's wrong, they just go to A&E because it's probably fine. Some people I think are under the impression that you can't walk in to A&E, that you have to be ambulanced in so the only way to get to A&E is by ambulance. And I just feel like there needs to be more education and publicity and, 'These things exist, here's how you can access them [pauses] there you go'.*
>
> *P10, young adult, FG*

Promoting NHS 111 on social media, in television adverts and by other routes was recommended, including gaining celebrity endorsement. Interview participants also echoed the need for greater publicity of NHS 111. Those in the focus group emphasised the importance of **placing publicity in non-clinical locations**, noting that 'most posters about medical services are in the hospital when you are already waiting for one service' (P15 FG), at which point it is too late to inform people. Specifically, they recommended promoting MIUs as an alternative to the ED, focusing on locations where people are more likely to need this service such as **gyms or sports facilities**. **Increasing awareness of the skills and knowledge of pharmacists**, and promoting their role in providing advice, was also highlighted as important in potentially reducing GP use in particular. Specifically, the group recommended that **GPs and other practice staff advise patients whose needs could have been addressed by pharmacists** about this option for future consultations.

Considering the issue on a wider level, the group felt that there was a **need for education around what constitutes an emergency or urgent health problem**, as this lack of understanding obviously has an impact on people's decision-making. The importance of beginning the process of **education in schools** was emphasised, in terms of informing children about what should be considered an emergency and about the appropriate use of different health services:

> P12 FG: *I think like the more we've talked about it the more like educating in school seem the most plausible [agreement] because we keep going, 'Oh, more publicity, more publicity' there's only so much money in the NHS anyway and it's, you can't just throw it out for every single service all the time can you?*
>
> P11 FG: *It's just starting people young isn't it? [agreement] getting them educated.*

An **app or another online resource to help decision-making** was also seen as a key tool to support change in service use, helping people decide on when and how to use different services:

> *(. . .) mainly directing to the right kind of place. Like if there could be some sort of red flag system of like, 'Oh you've got that symptoms, that's serious'. You know for people who've got a cold and like automatically worry that they've maybe got meningitis or something, like some sort of, 'Have you got any of these three symptoms that would indicate meningitis?' [agreement] OK, you do? Then yes, you do need a GP appointment. Yes, you do need to go to A&E.*
>
> *P10, young adult, FG*

Addressing the problem of inappropriate use, the group suggested raising awareness of the cost of service use and missed appointments, and explored the issue of penalties for misuse, although they acknowledged the difficulties that prevented this being a viable option. Finally, encouraging people to take more responsibility for their own health was emphasised, as this would ultimately lead to less service use overall. Returning to the concern around mental health, the group felt that **improving mental health literacy** was a priority, enabling people to identify and address their symptoms before they need urgent or emergency help.

Social deprivation subgroup

Service provision

In common with the other subgroups, **accessibility and availability of GP appointments** was highlighted as a key priority in changing decision-making. In relation to access, a number of participants reported difficulties in either getting through to their practice to make an appointment or being able to access a timely appointment once they did get through to their practice, leaving them feeling that they had no option but to use another service:

> *You either go there or you wait to phone your GP then you don't get through so in the end you go to A&E. Then you're getting worse so you might as well just go.*
>
> *P9, social deprivation, FG*

Reflecting the concerns raised by young adults, both the focus group and the interview participants emphasised the need for **more appointments outside normal office hours** and greater availability of appointments within a few days of making contact, rather than the current dichotomy of same-day appointments or waiting several weeks. Summing up a problem experienced by many, one interview participant highlighted how this dichotomy prompted her to leave things until they became urgent rather than book an appointment for some weeks ahead, by which time the problem may have resolved. Interview participants focused almost exclusively on issues relating to general practice and made a wide range of suggestions for improvement, including having drop-in appointments for children; reviewing the current same-day appointment booking system, including offering the option to book a next-day urgent appointment rather than having to telephone each day; being able to book appointments in person rather than over the telephone, which was important for those not confident about speaking English; having greater continuity of care from an individual GP; being able to speak directly to a doctor about a problem rather than communication being mediated by reception staff; having priority appointments for elderly people; and removing the triage system so that appointments could be allocated on request rather than being based on potentially inaccurate information.

One recommendation made in the focus group to reduce the use of GPs was **increasing the prescribing role of pharmacists,** which could particularly have an impact on those **who obtain their prescriptions free of charge**:

> *. . . it sounds really mercenary but some of time, because I get my prescriptions free, I'm over 60, I think I'm going to pharmacist but then, whatever they prescribe you, you've got to pay for. And you can go to*

> *your doctor and you can get on prescription and I know that sounds really awful (. . .) but that is one of things that goes through me mind (. . .) I'm sure it would be for a lot of these people who are, if they're on benefits they get free prescriptions anyway don't they but I certainly think that is a stumbling block for some people, 'Why should I pay when I can get it free?'*
>
> *P8, social deprivation, FG*

Improvements to the **consultation space in pharmacies** were also seen as essential in this context, with privacy being a particular concern.

Although NHS 111 was valued, and promoting it more widely was seen as a priority, **changes to improve the NHS 111 service** were considered a prerequisite. In particular, echoing concerns raised by young adults, the group felt that there was a need to streamline the assessment process, with staff able to access patients' clinical records so that they could avoid the lengthy questioning that currently discouraged people from using the service:

> *I think where it's fallen down is, there's a boring, protracted rigmarole whereby you've got to speak to somebody for 10 minutes and give your details and your favourite colour and everything before you can actually get to the point of the call. If they, you know, streamlined that service and made it more efficient then I think that would be a viable option.*
>
> *P7, social deprivation, FG*

Similarly, although increasing the number of WICs was recommended, there was a perception that **the skill and specialism of practitioners based in them** needed to be improved if people were to have sufficient confidence in this service for it to become an alternative to the ED. Combining the accessibility of WICs with the quality of GP services was also identified by interview participants.

Perhaps reflecting poorer availability of their own transport, access was a key concern in this group, potentially driving the recommendation to **co-locate a wide range of services within a number of local centres**, such as the ED, WICs, MIUs, general practices and baby clinics.

> *. . . instead of just having one central minor injuries, whatever, A&E, you know, Sheffield's a big city, people have to travel from really far places, you know, so we could have something as (name) said east, west, north and south (. . .) So it would be really good to have something like that around the city where you have so many services at one building.*
>
> *P9, social deprivation, FG*

However, the group also highlighted the widespread confusion about the range and scope of different services available, and the consequent difficulty of making an informed decision. Rather than promoting this diversity, one suggestion was to significantly simplify provision to offer only the familiar, more clearly delineated services of the GP and ED and thereby reduce the complexity of decision-making.

Education and awareness

As noted in the previous section, the group considered it a priority to address the widespread confusion about when and how different services should be used, in particular by **raising awareness of what each health service can offer**, including the type and severity of conditions it can deal with, and when and how it can be accessed. In particular, the need to **raise awareness of the NHS 111 service** was emphasised to enable it to be promoted as an alternative source of advice when a GP appointment could not be accessed, with one participant observing:

> *. . . there's only four of us and we've all got individual ideas. Like to me it's just an out-of-hours service. I wouldn't dream of calling it [NHS 111] in the day, if your GP's open (. . .) We've all got such different, it's just amazing for such a small group (. . .) So if four of us have got our own opinions, you can imagine what 40 would have. So it certainly needs something to get people a lot more aware of.*
>
> *P8, social deprivation, FG*

Promoting **the role of pharmacies** was also mentioned. Echoing comments made by the young adults' group, the need to raise awareness about service use in non-clinical locations was highlighted, rather than this being done at a point when individuals had already made a decision about where to seek care:

> *. . . it seems like closing the stable door after the horse has bolted because you're already there (. . .) but also a lot of people are worried when they're in waiting rooms and I don't think it's necessarily the best time to be reading things. I mean you're not at your most perceptive, when you're about to go into an appointment that you're concerned about, so I think that more needs to be done to get people before they're in that situation.*
>
> *P7, social deprivation, FG*

Concern and frustration were also expressed about the **misuse of services,** prompting the group to recommend greater education to encourage people to take responsibility for managing their health, and to also consider applying penalties to 'repeat offenders', although the highly problematic nature of this was also acknowledged.

Overview of findings by service

Although the analysis focused on exploring the perspectives of the different subgroups, it became clear that there was significant overlap in their recommendations relating to particular services and approaches. We drew diagrams to clearly identify these areas of overlap and the distinctive perspectives of each subgroup (see *Figures 4–7*). The largest number of recommendations related to changes in general practice. *Figure 4* highlights how all three subgroups emphasised that improving access to GP appointments was key to reducing the use of higher-acuity services, and each group also made at least one other recommendation. *Figure 5* highlights how WICs were discussed in some detail, with both parents and participants from socially deprived areas making recommendations.

Other services were discussed in less detail, but there was a consensus across the groups that there was a need to better promote services that could provide alternatives to the emergency ambulance service, ED or urgent GP appointments. In particular, all groups highlighted raising awareness of the role of pharmacists and encouraging the use of NHS 111 as part of a broader recommendation to publicise and clarify the scope of each service and how and when it can be accessed. As can be seen in *Figure 6*, education and raising awareness was a shared area of concern, but a particular focus among the young adults subgroup.

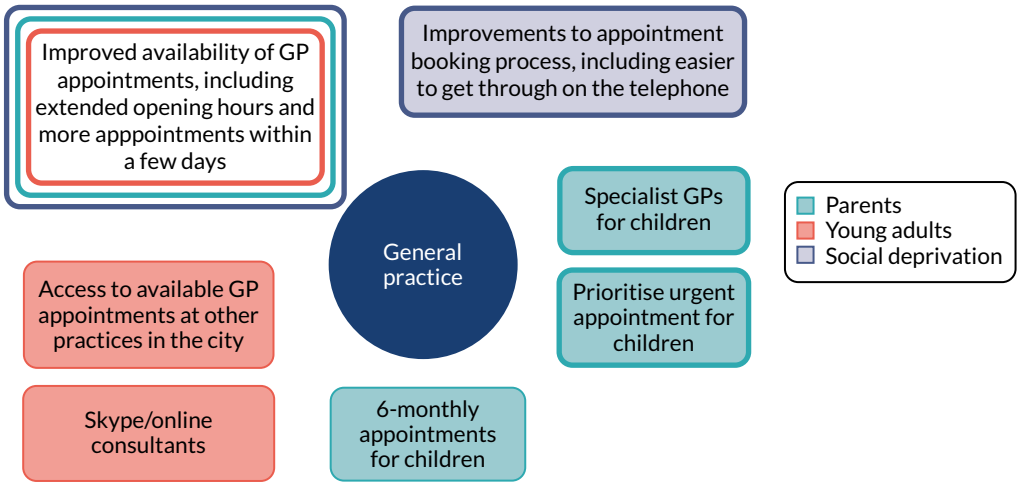

FIGURE 4 Interventions recommended related to general practice. Bold outlines denote the priority recommendation.

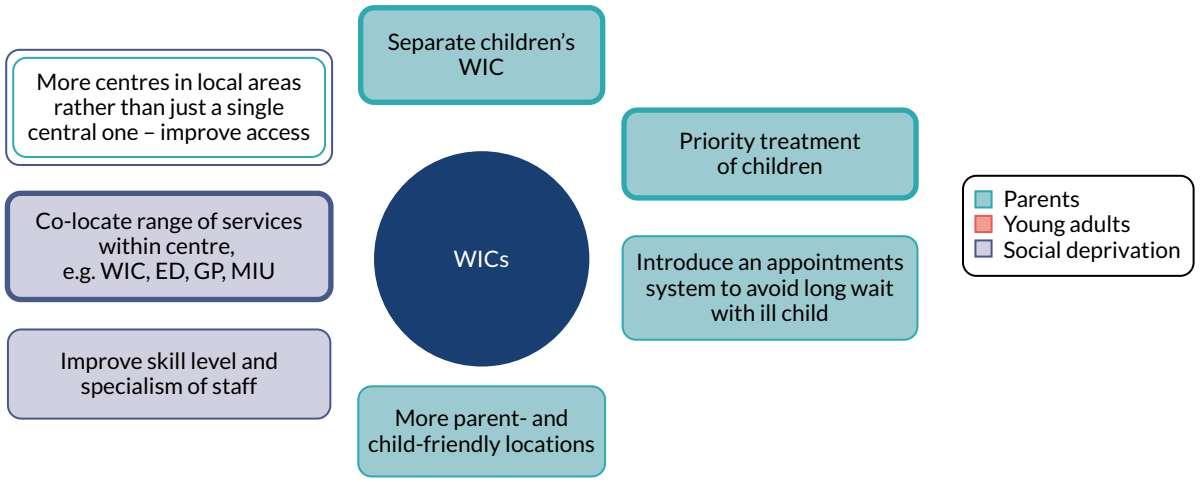

FIGURE 5 Interventions recommended related to WICs. Bold outlines denote the priority recommendation.

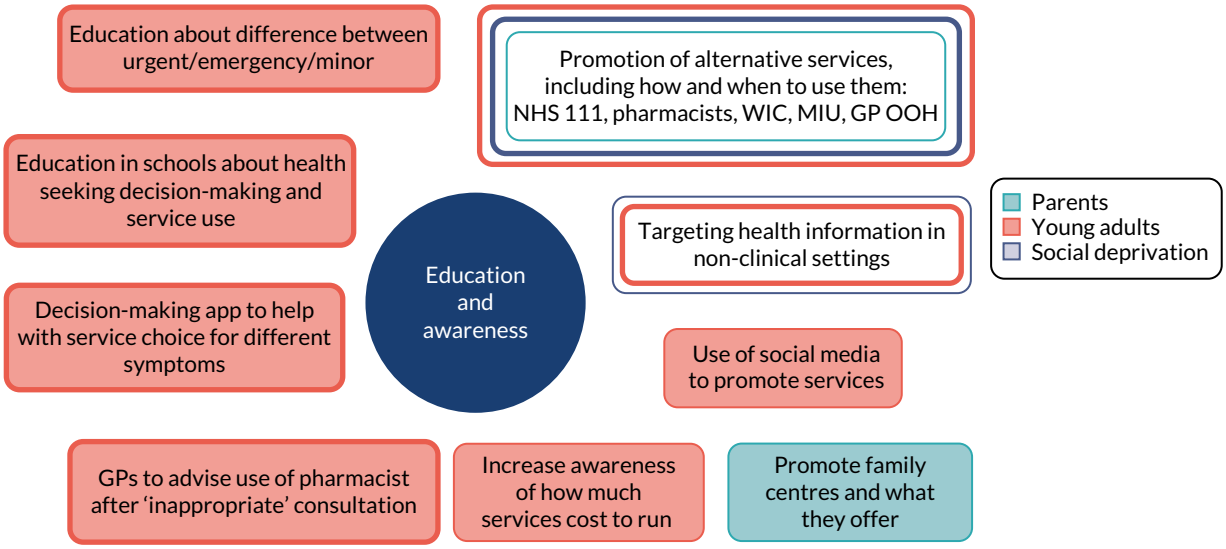

FIGURE 6 Interventions recommended related to education and awareness. Bold outlines denote the priority recommendation. OOH, out of hours.

The final area of intervention around which there was considerable shared interest was the need to encourage and support people to take responsibility for managing their own and their family's health. As shown in *Figure 7*, both young adults and parents of young children had a number of specific recommendations relating to this topic.

Discussion

Summary of findings

Participants in the focus groups and interviews presented a clear picture of their experiences and views about emergency and urgent care services, and what action could be taken to increase the use of alternative services. Although each subgroup focused their concerns on specific issues and needs, there were also many areas of agreement about where interventions should be focused. In particular, for parents of young children, services needed to offer quick access and have appropriate knowledge

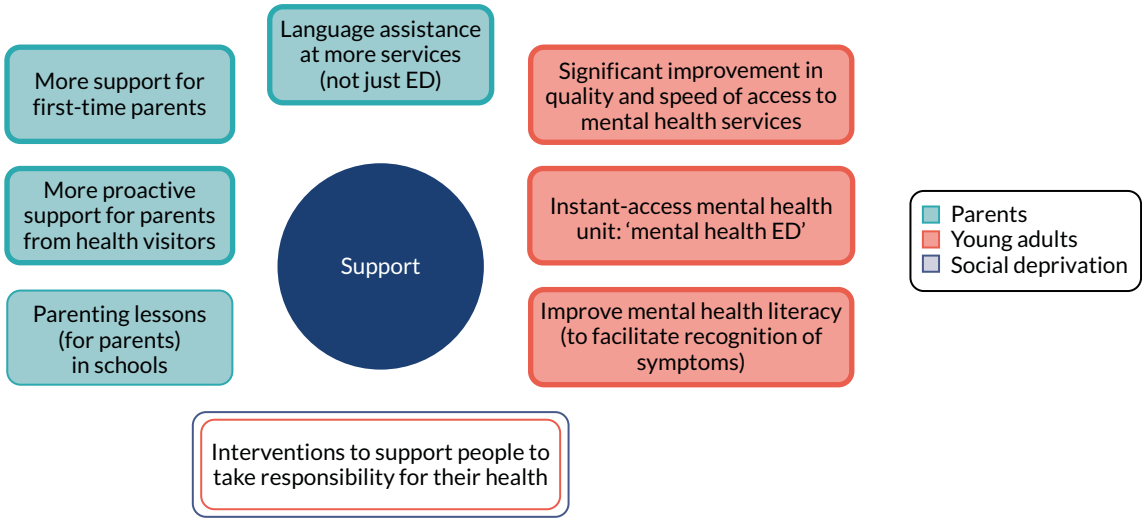

FIGURE 7 Interventions recommended in relation to supporting individuals. Bold outlines denote the priority recommendation.

and skills in relation to children's health to address the anxieties and the sense of responsibility that parents experienced. An awareness that young children are more vulnerable drove a number of recommendations for services to prioritise or focus on treatment of this group. Young adults highlighted how inadequate mental health provision could increase the use of emergency and urgent care services for physical problems as a result of raised anxiety, and recommended improvements to these services. The need for education and greater use of online resources and social media was also emphasised by this group. Concerns among the social deprivation group were more universal, but there was a greater focus on improved access to services, including co-locating services at a number of local centres. Although these differences were apparent, there were also clear areas of agreement, with a number of priorities being shared by all three groups. In particular, improved access to and availability of GP appointments was a key priority, together with raising awareness and knowledge of the range and scope of services that could be an alternative to emergency and urgent care. Interventions to enable people to manage their own health and use services more effectively were also highlighted by all three subgroups.

Link to interventions recommended by authors of articles in work package 1

The recommendations made by the focus group and the interview participants clearly related to the different categories of interventions identified by authors of the literature that was included in the review in WP1, as shown in *Table 7*. The only category of intervention raised in WP1 and not present during the focus group discussions related to reductions in primary care referrals to the ED, although the role of both NHS 111 and the GP in some participants' service use was mentioned during both the focus groups and the interviews.

Strengths and limitations

The findings from this part of the study are based directly on the experiences and views of patients who were deemed by the service that they used to have made a 'clinically unnecessary' decision. This is a particular strength, as it allows those patients who were considered to be contributing to 'clinically unnecessary' use of three pressurised emergency and urgent care services to identify interventions that could change this behaviour. The findings are limited by the size of the sample, including a substantial overlap between interviewees and focus group participants. This was because recruitment to a focus group proved to be very challenging in terms of both asking people to participate and getting them in a room together at the same time. The recruitment methods also mean that participants were drawn only from the three subgroups considered in this study, and were also self-selecting. Therefore, it cannot be assumed that their views represent those of all patients who make 'clinically unnecessary' decisions.

TABLE 7 Comparing interventions recommended by authors of articles in WP1 review with the focus group findings

Category of recommended intervention	Parents	Young adults	Social deprivation
Patient education regarding management of health problems and service use	Priority	Priority	Priority
Recognition of the influence of personal and social context on decision-making	Priority	Priority	Priority
Improve primary care provision, including out-of-hours support	Priority	Priority	Priority
Changes to the structure of care provision in the ED	Priority	Priority	Priority
Improve the relationship between primary care and patients	Yes	Yes	Yes
New/alternative patterns of care provision in the community	Priority	Yes	Priority
Reduce primary care referral to the ED	–	–	–

Future research needs to extend the findings here by drawing on a larger, more diverse sample of patients, and to explore these ideas using a greater number of focus groups or other methods.

Link to wider literature

Policy-makers have instigated some of the interventions identified here, for example the Choose Well campaign to inform people about alternative options to EDs and GPs, NHS Direct (in the past) to offer reassurance to anxious patients, NHS 111 to direct people to the most appropriate service or self-care and WICs to offer appointment-free, easy-access primary care. As noted in *Aim*, the research evidence about the variety of interventions tested is largely inconclusive.[24] This leaves the way forward challenging. What is clear is that one intervention alone is unlikely to work because of the diversity and complexity of problems that need to be addressed. The area around which there was the greatest consensus and clearest priority for intervention in the focus group findings was improving access to GP appointments. Participants' frustrations and challenges with GP appointments in the UK are also highlighted by MacKichan *et al.*,[98] who identify how factors such as complex systems, limited appointment availability and the requirement to communicate by telephone prompt patients to seek care at the ED. Reflecting on our focus group with parents, speed of access to care has also been seen as particularly important in relation to children's health.[98] There is some evidence that extended general practice opening hours can reduce ED attendance for minor conditions, and, although cost-effectiveness and long-term feasibility were not established conclusively, our findings suggest that this could be explored further.[130] In addition, the variation in recommendations between the three subgroups highlights the importance of tailoring interventions to different subgroups' needs. For example, a comprehensive strategy may need to include the introduction of child-specific services, improved mental health service provision and more localised co-located health-care services to address the perceived needs of the three subgroups studied here.

Implications

A range of interventions, rather than one intervention, is likely to be necessary to address 'clinically unnecessary' use of emergency and urgent care, with tailoring to specific population subgroups. Evaluation of interventions will be essential owing to the lack of a strong evidence base for such interventions. Strengthening general practice, with an emphasis on access and appointment systems, is worth pursuing as an intervention to reduce the use of EDs.

Chapter 6 Survey of general population

Introduction

Population attitudes and beliefs can shape the use of emergency and urgent care services. For example, leading researchers have concluded that policies to reduce demand for emergency ambulances need to address population opinions and attitudes,[1] and researchers have attempted to reduce demand for ambulances by using mass media campaigns to change population attitudes and behaviour.[131]

Researchers have undertaken population surveys to explore population attitudes towards emergency and urgent health services.[132] They sometimes use vignettes within these population surveys to identify the characteristics of those who have a tendency to make 'clinically unnecessary' use of emergency and urgent health services.[6,133,134]

Aim and objectives

Our aim was to explore population attitudes and beliefs about seeking urgent care. The objectives were:

1. to measure the prevalence of population perceptions of seeking urgent care, and how these vary in different circumstances, and by different population subgroups
2. to identify the characteristics of people with a tendency to make 'clinically unnecessary' use of emergency and urgent care using vignettes.

Methods

British Social Attitudes Survey

The design was a cross-sectional general population survey undertaken by NatCen. NatCen conducts an annual survey in Britain, the British Social Attitudes Survey, to measure social attitudes. It designs the survey to yield a representative sample of adults aged ≥ 18 years.

In 2018, NatCen undertook a multistage design in three stages. First, it selected 395 postcode sectors, with probability proportional to the number of addresses in each sector. Prior to selection, all sectors were stratified by region, population density and percentage owner-occupied. These sectors covered Great Britain but not Northern Ireland, which is part of the UK. Second, it selected 26 addresses in each sector to produce 10,270 addresses. Third, interviewers called at each address and listed all those aged ≥ 18 years before randomly selecting one adult to interview. For practical reasons, the sample was confined to those living in private households, thus excluding people living in institutions. In 2018, the sample was divided into four parts, with each part (of around 1000 respondents) being nationally representative in its own right. The University of Sheffield used funding from the National Institute for Health Research (NIHR) to purchase a set of questions in three parts of the survey, that is, a sample size of around 3000. We chose this sample size because it offered sufficient statistical power for subgroup analyses.

The main mode of administration was face-to-face computer-assisted interview. Before an interviewer called at an address, a letter was sent to each selected household informing residents that an interviewer would visit and giving an unconditional financial incentive of a voucher. Interviewers then visited and completed most of the questionnaire face to face. A minority of questions were asked through a self-completed questionnaire, which was then collected by the interviewer or posted by the respondent. Data collection was undertaken from July to November 2018.

Developing the questionnaire

In 2018, the full British Attitudes Survey questionnaire covered a range of topics, such as attitudes to welfare, health, housing and education. Sociodemographic questions that were asked as part of the wider questionnaire were available for analysis in our study. We purchased a 60-item module exploring population views of seeking urgent care. The module used language that members of the public could understand, asking about seeking help for 'unexpected health problems that were not life-threatening'. Items included three pairs of vignettes, questions related to the 10 programme theories from WP1 and attitudes towards the use of emergency and urgent care services. The module was based on findings from the WP1 realist review, literature about the use of emergency and urgent care in general, early findings from the WP2 qualitative study and a workshop with 13 members of the public at which potential questions were presented and discussed in small groups (see the next section). NatCen undertook two consecutive pilots of draft questionnaires on around 50 members of the public prior to finalising the questionnaire.

Patient and public involvement workshop

In the original proposal we planned to develop the content of the questionnaire at a PPI event with 20 members of the public; we held an event in January 2018. The event was designed to provide feedback on some of the questions that we were intending to use as part of the survey, and on the health literacy instruments that we were considering incorporating into the questionnaire. We publicised the event via existing PPI networks and on flyers placed in a variety of locations, including the local WIC and ED waiting rooms. The flyers identified the purpose of the event (to contribute to development of content of a national survey), the date and venue of the event, and that attendees would receive refreshments on the day along with a £30 shopping voucher. We invited interested members of the public to contact a researcher (EK) to obtain further details about the event. We asked those who confirmed that they would attend a small number of demographic questions to allow us to include a diverse range of people. Twenty members of the general public confirmed their attendance. On the night before the event, heavy snowfall occurred, and this resulted in fewer people at the event than anticipated. Thirteen members of the general public spent a day looking at different sections of the proposed questionnaire. A member of the research team (EK, AOC, LBE) facilitated discussion in three smaller groups. In each group, people tried to complete sections of the draft questionnaire and then discussed the content. We tested two ways of measuring health literacy. The conclusions included:

- Our planned way of measuring health literacy was off-putting because it felt like a test. An alternative, measuring subjective views of health literacy, was preferred.
- People did not like the use of names in vignettes and were frustrated by the lack of information in the vignettes, but also liked the shorter vignettes.
- People were concerned that asking why they ticked 'go to an ED' for the vignettes would make this stand out as an option and alter later vignette answers.
- People did not like having a long list of questions to complete using the same response set and asked us to use shorter sets of questions.

We redrafted the questionnaire after this event and sent it to NatCen for piloting.

Questionnaire content

A copy of the final questionnaire is available on the project web page (www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). There were four sets of questions:

1. sociodemographic characteristics
2. vignettes to measure tendency to use higher-acuity services than clinically necessary
3. ten programme theories from the WP1 realist review
4. other issues from the literature influencing 'clinically unnecessary' demand.

Sociodemographic characteristics

NatCen collect a range of characteristics of respondents within the British Social Attitudes Survey. We considered the effects of:

- sociodemographics – age, sex, ethnicity, region, household with children aged < 5 years, deprivation as measured using the IMD, social class and rurality
- resources – car ownership and access to internet
- health – long-term limiting illness and general health

Deprivation and rurality were not asked about in the questionnaire but were added to our data set by NatCen from background information held for sampling purposes.

Vignettes

Vignettes used in emergency and urgent care population surveys have varied in terms of whether they focus on a third party or ask an individual to say what they would do, the amount of detail in the vignettes, and the potential seriousness of the problems addressed within them.[6,134,135] For example, some focus on chest pain and finding a lump,[135] whereas others focus on less serious issues of an ankle sprain/bruise on leg after a fall and a child with a cold.[6]

In the proposal we said that we would construct three vignettes: one in which care is needed immediately from an urgent care service (e.g. NHS 111, GP in hours same day, GP out of hours, WIC), one in which care is needed from a GP within a few days for a non-urgent problem and one in which self-care could be undertaken. In practice we constructed three pairs of vignettes, with a half of the sample receiving the same three vignettes. This allowed us to assess the effect of different symptoms and different times at which events occurred. We constructed these vignettes with clinical input from Steve Goodacre, who is an academic ED consultant, and Jon Dickson, who is an academic GP. Our PPI members and attendees at our large PPI event commented on the evolving versions of these vignettes.

We focused the vignettes on minor health problems. We identified a pair of illness vignettes with an expected action of self-care or pharmacy. We identified use of an emergency ambulance, ED or GP as 'clinically unnecessary':

- Illness 1: imagine you have had a cough and sore throat for 3 days.
- Illness 2: imagine you have had diarrhoea and vomiting for 2 days.

We identified a pair of injury vignettes where we expected respondents to contact a GP, contact an urgent care service such as an urgent care centre or a MIU, self-care or use a pharmacy. We identified use of an emergency ambulance or ED as 'clinically unnecessary':

- Injury 1: imagine you have fallen and have a very painful rib. It is 8.30 in the evening.
- Injury 2: imagine you have had back pain for 2 weeks and have not been able to sleep.

We identified a pair of child vignettes where we expected respondents to contact a GP in or out of hours, contact an urgent care service such as a WIC, self-care or use a pharmacy. We identified use of an emergency ambulance or ED as 'clinically unnecessary':

- Child 1: imagine your young child or a young child in your care has a high temperature and cried throughout yesterday and last night. Today, which is a Saturday, you do not think the child has improved.
- Child 2: imagine your young child or a young child in your care has a high temperature and cried throughout yesterday and last night. Today, which is a Wednesday, you do not think the child has improved.

We explored these symptoms on the NHS Choices website and this validated our conclusions about the clinically recommended actions to take. In the case of all of these symptoms, NHS Choices confirmed they are unlikely to be serious and that self-care is usually adequate. We show summaries of the advice offered by NHS Choices in *Appendix 8*. The response options offered for each vignette are shown in the questionnaire

available on the project web page (www.journalslibrary.nihr.ac.uk/programmes/hsdr/1513612/#/; accessed 5 February 2020). In the proposal we said that if a respondent selected an emergency service we would ask why. However, attendees at our wider PPI event and NatCen expressed concern about this because it might have alerted respondents to what was considered to be a right or wrong answer.

Ten programme theories from work package 1 realist review

We included questions to measure aspects of the 10 programme theories identified in WP1. We struggled to construct questions that measured some of the programme theories (see *Results*, *Description of programme theories*).

Other influences

Some issues in the literature did not become programme theories but we felt that they were important enough to be included in the questionnaire:

- **Awareness of services** because it appeared in articles in the review.
- **Recursivity**, in that patients learn to attend services because services have sanctioned previous decisions,[68] because it is a relatively new issue identified in emergency care literature.
- **Health literacy** because it is a relatively new issue identified in the emergency care literature. In the proposal we highlighted that researchers in the USA were studying the effect of low health literacy on ED use and developing interventions to address this.[136] Although health literacy is associated with social class and educational attainment, 29% of people attending EDs for non-urgent issues have a college education and low health literacy.[137] We explored the use of two validated instruments to assess health literacy: Newest Vital Sign (NVS) and HLQ. We had originally intended to use the NVS in the first pilot because Duell *et al.*[138] undertook a systematic review of measuring health literacy in a clinical environment and found that using the NVS was the most acceptable approach. We identified an alternative because of concerns expressed by NatCen about NVS. The HLQ was developed and validated in Australia[139] and consists of nine domains of health literacy. We selected two five-item domains most relevant to our study: domain 6, 'ability to actively engage with health-care providers' (we labelled this ABILITY), and domain 9, 'understand health information well enough to know what to do' (we labelled this UNDERSTAND). Its strengths were that it addressed two aspects of health literacy and was preferred over the NVS at the PPI event, and the attendees at the wider PPI event found it very easy to complete.

We also wanted to take account of the following:

- **Recent use of health care** because people recently using a service may be more likely to base their answers on experience. We used the question from the General Practitioner Patient Survey 2017[140] and adapted it to ask about emergency ambulance and ED use as well as general practice.
- **Beliefs about overuse of services** because we were interested in whether or not the population shared views about 'clinically unnecessary' use of services.

Analysis

Weighting

NatCen uses a robust sampling and weighting method, with weights applied for unequal selection probabilities and non-response and then calibration weights. Therefore, it enables analysts to make generalisations to the population at large. NatCen produced separate weights for interviewer-administered questions and self-completed questions because of differential response rates:

- We used both unweighted and weighted data when presenting *descriptions of variables* and simple bivariate analyses.
- We used unweighted data in the logistic regressions because we could not undertake this type of regression in SPSS (IBM Corporation, Armonk, NY, USA) or Stata (Stata Press, College Station, TX, USA) using weights.

Description of attitudes and tendency

We summarised the responses to questions to display the prevalence of population attitudes. This included a summary of responses to each pair of vignettes, comparing responses to show how different characteristics, such as symptoms, age and day of the week, affected tendency.

Differences by subgroups

We compared items related to the 10 programme theories by different sociodemographic characteristics using chi-squared tests. We limited this testing to variables related to the three subgroups from WP2 (young adults, parents of young children, deprivation levels) and a subgroup identified commonly in our programme theories in WP1 (presence of chronic conditions).

Explaining the tendency to make 'clinically unnecessary' use of services

We considered fitting a multinomial model comparing ambulance, ED and GP use with pharmacy/self-care, but were concerned about the difficulty of interpreting the results of multinomial analyses. Instead, we undertook a logistic regression on a series of binary comparisons. We considered the tendency to make 'clinically unnecessary' use of six health services: emergency ambulance, ED adults, ED children, ED all, GP and any service. We divided ED into adult and child because of the radically different answers to the child and adult vignettes. We wanted to do this for the ambulance analysis also, but the numbers were too small. We created binary variables based on whether or not the respondents chose 'clinically unnecessary' options in the vignettes. In the proposal, we planned to measure the proportion of people selecting a higher or lower level of care recommended for each scenario. In practice we selected only a higher level of care because of our focus on 'clinically unnecessary' demand.

We undertook a logistic regression comparing those ticking 'clinically unnecessary' options for a vignette with those who did not. We used SPSS version 25. First, we conducted a univariate analysis on each of the binary tendency outcomes, testing 54 independent variables. We then tested only the significant independent variables in a complete-case multivariable logistic regression using backwards elimination with a cut-off point of 0.05 for selection. We calculated the number of events per variable: the number of events divided by the number of degrees of freedom required to represent all of the variables in the model. The events per variable need to be at least 10 and preferably 20 for reliable parameter estimation. If fewer than this, there is an increased risk of overfitting of the models. Backwards elimination has advantages over forward selection when variables are correlated.[141] We collapsed some categories of some variables for the regression where numbers were small. We present odds ratios and 95% confidence intervals (CIs).

Once we had our final multivariable regressions we tested for multicolinearity by calculating generalised variance inflation factors using the statistical package R (The R Foundation for Statistical Computing, Vienna, Austria). We could not use SPSS because this software calculates variance inflation factors for linear regressions only. The variance inflation factors for each of the six regressions ranged from 1 to 1.7, well within the limit of < 5, indicating that multicolinearity was not at play.

We took the final multivariate regressions and tested whether or not the results depended on which vignettes were completed. We tested interactions between factors in each final regression and the two samples that completed different vignettes (cough/rib/Saturday and vomiting/back/Wednesday).

Missing data

As the number of missing data was small (apart from the missing values for self completion questions), missing data were treated as missing and no methods of imputation were used. However, in some cases, missing data were recoded as a category 'missing' to increase the sample size in the analysis.

Reporting guidelines

We completed the STROBE (STrengthening the Reporting of OBservational studies in Epidemiology) reporting guidelines.[142]

Results

Response rate and non-response bias

The overall survey response was 42%, with 2906 respondents completing our module during face-to-face administration. In total, 79% of those interviewed returned the self-completed part of the questionnaire, that is, 2309 individuals. There was non-response bias for the self-completion questionnaire compared with the face-to-face interview. People from black, Asian and minority ethnic (BAME) groups, people with fewer educational qualifications and people with lower levels of political interest were less likely to return it.

Description of respondents

We describe respondents in *Table 8*. We show the distribution of respondents based on both weighted and unweighted data. Among the subgroups relevant to our study (see WP2), 169 respondents were aged 18–24 years, 300 respondents were living in households with children aged < 5 years (a proxy for parents of young children) and 576 were living in the most deprived quintile.

TABLE 8 Characteristics of the survey sample (unweighted and weighted)

Variable	Numbers (%) unweighted	Weighted (%)	Source	Numbers missing
Age group (years)				
18–24	169 (5.8)	11	IA	5
25–34	384 (13.2)	17		
35–44	467 (16.1)	16		
45–54	469 (16.1)	18		
55–64	508 (17.5)	16		
65–74	499 (17.2)	13		
≥ 75	405 (13.9)	10		
Sex				
Male	1257 (43.3)	48	IA	–
Female	1649 (56.7)	52		
Ethnicity				
White origin	2572 (88.5)	85	IA	–
BAME	334 (11.5)	15		
Region				
North	474 (16.3)	16	IA	–
Midlands	796 (27.3)	25		
South	957 (32.9)	32		
London	395 (13.6)	14		
Wales	132 (4.5)	5		
Scotland	264 (9.1)	9		
Households with children aged < 5 years				
0	2591 (89.6)	88	IA	15
≥ 1	300 (10.4)	12		
Social class				
I	214 (7.6)	7.5	IA	92
II	1039 (36.9)	36		
III (non-manual)	569 (20.2)	21		

TABLE 8 Characteristics of the survey sample (unweighted and weighted) (*continued*)

Variable	Numbers (%) unweighted	Weighted (%)	Source	Numbers missing
III (manual)	416 (14.8)	15		
IV/V	524 (18.6)	19		
Armed forces	52 (1.8)	2		
Social deprivation (IMD quintiles)				
1 (most deprived)	576 (19.8)	22	IA	–
2	545 (18.8)	20		
3	536 (18.4)	18		
4	638 (22.0)	20		
5 (affluent)	611 (21.0)	20		
Urban–rural categorisation				
Urban	2241 (77.1)	80	IA	–
Rural	665 (22.9)	20		
Access to internet				
Yes	2542 (87.5)	91	IA	–
No	364 (12.5)	9		
Car ownership				
0	428 (14.7)	13	IA	995 not asked but included in variable as not known
≥ 1	1478 (50.9)	52		
Not known	1000 (34.4)	35		
Long-term limiting illness				
None	1766 (60.8)	64	IA	–
Non-limiting	586 (20.2)	19		
Limiting	541 (18.6)	16		
Don't know, refusal	13 (0.4)	0.4		
General health				
Excellent	223 (9.7)	11	SC	597
Very good	725 (31.4)	31		
Good	799 (34.6)	35		
Fair	360 (15.6)	15		
Poor	163 (7.1)	6		
Can't choose/not answered	39 (1.7)	2		

IA, interviewer administered; SC, self-completed.

Description of vignette responses

Each respondent completed three vignettes. Respondents could tick more than one option when answering each vignette. All options are shown in *Table 9*. Those ticking more than one option were asked which would be their first action. A minority of respondents selected more than one option (between 12% and 27%, depending on the vignette). Self-care was a commonly selected first option when ticking more than one option for some of the vignettes: 60% for the cough vignette, 44% for the diarrhoea and vomiting vignette and 25% for the injuries vignettes. Calling NHS 111 was a common first option when ticking more than one option for the child vignettes: 38% for the Saturday vignette and 23% for the Wednesday vignette.

TABLE 9 Percentages of population selecting options for different vignettes[a]

Option selected	Adult illness, *n* (%)		Adult injury, *n* (%)		Child illness, *n* (%)		
	Cough (*N* = 1471)	Diarrhoea and vomiting (*N* = 1435)	Sore rib (*N* = 1471)	Back pain (*N* = 1435)	Saturday (*N* = 1471)	Wednesday (*N* = 1435)	Any, (*N* = 2906)[b] *n* (%)
Call 999 for an ambulance	**4 (0.3)**	**22 (1.5)**	**79 (5)**	**13 (1)**	**129 (9)**	**120 (8)**	**328 (11)**
Go to A&E	**17 (1.2)**	**73 (5)**	**366 (25)**	**89 (6)**	**504 (34)**	**445 (31)**	**1216 (42)**
Contact a GP including GP OOH	**320 (22)**	**641 (45)**	174 (12)	1001 (70)	417 (28)	718 (50)	1972 (68)[c]
Another NHS service (e.g. pharmacist)	262 (18)	260 (18)	278 (19)	247 (17)	354 (24)	270 (19)	1223 (42)
Call urgent telephone helpline, NHS 111	42 (3)	229 (16)	326 (22)	93 (6)	439 (30)	302 (21)	1088 (37)
Self-care	1026 (70)	693 (48)	379 (26)	279 (19)	45 (3)	43 (3)	1882 (65)
None of these options	45	14	71	30	8	16	160
Refusal/don't know/missing	10	7	11	8	18	13	34
Percentage of respondents ticking 'clinically unnecessary' options	**23%**	**49%**	**30%**	**7%**	**42%**	**37%**	**64%**

OOH, out of hours.
a Based on unweighted data.
b Multiple options could be selected so percentages add to > 100.
c Some of these are included in any service analysis.
Bold indicates 'clinically unnecessary' options selected.

When identifying respondents with a tendency to seek 'clinically unnecessary' care, we selected those ticking a service used at any point in their help-seeking rather than their first option.

Propensities for taking different actions differed by vignette (see *Table 9*). Tendency varied by symptom, and to some extent by time: cough (23%), diarrhoea and vomiting (49%), rib (30%), back pain (7%), child illness on a Saturday (42%) and child illness on a Wednesday (37%). The key findings were:

- The two adult illness vignettes had different responses. The 'clinically unnecessary' options were ambulance service, ED and GP. Diarrhoea and vomiting resulted in a much higher tendency for 'clinically unnecessary' use than a cough (49% vs. 23%). This was the case for all services: ambulance, ED and GP.
- The two adult injury vignettes also had different responses. The 'clinically unnecessary' options were ambulance service and ED. Sore rib resulted in a much higher tendency for 'clinically unnecessary' use than back pain (30% vs. 7%). The need for an X-ray may have been in people's minds when responding to the rib vignette, even though NHS Choices says that an X-ray may not be needed (see *Appendix 8*).
- The two child vignettes resulted in surprisingly similar answers. The 'clinically unnecessary' options were ambulance service and ED. The difference between the percentage of respondents ticking 'clinically unnecessary' options for the Saturday and Wednesday vignettes was 42% versus 37%, with respondents more likely to try another service or call NHS 111 on a Saturday.
- The proportion of 'clinically unnecessary' use was considerably higher among responses to the child vignettes than among responses to the adult ones, with considerable use of emergency ambulance for the child vignettes (8% to 9%). This fits with our programme theory 'fear of consequences when responsible for others' (see WP1) and our qualitative research showing that parents feel high anxiety about symptoms in children (see WP2).
- Calling NHS 111 was a commonly chosen option: between 3% and 30% of respondents ticked this option depending on the vignette.
- Only a small proportion of respondents (5%) ticked a 'clinically unnecessary' option for all three vignettes that were presented to them. We had considered undertaking a logistic regression on this group, but the numbers were too small.

Description of programme theories

Operationalising some of the programme theories was difficult, but the variables used to explore each programme theory are shown *Table 10*. The key findings for each programme theory were:

- Programme theory 1, uncertainty and anxiety about seriousness. We asked two questions to address this programme theory. Fourteen per cent of respondents were very likely to worry that pain was a sign of something serious and 4% were not confident about deciding when to see a doctor and when to self-care. The latter question had a large number of missing values because it was self-completed.
- Programme theory 2, previous traumatic event. We asked one question to address this programme theory. Twenty-four per cent of respondents had not gone to the doctors at first for a previous problem and it had turned out to be serious.
- Programme theory 3, responsibility for others. We measured this by asking about adult and child vignettes and showed that respondents had a higher tendency select 'clinically unnecessary' options in response to the child vignettes. We could not include this in the logistic regressions later in the analysis so this programme theory was not tested further.
- Programme theory 4, need to get back to normal functioning/daily living. We asked three questions related to this programme theory. There was strong support for this programme theory in that an increasing percentage of people would contact a doctor or nurse immediately depending on whether or not and how a health problem affected daily activities, from 9% if the problem was not affecting daily activities to 67% if it was affecting an ability to attend to responsibilities of looking after family or going to work. There was an issue about how to represent this in the logistic regressions. We decided not to use these three variables in the logistic regression but to compute two new variables from these three questions to identify people who would contact a doctor or nurse only if they lost sleep or if they could not fulfil their responsibilities around family or work.
- Programme theory 5, need for pain relief. We asked three questions about whether or not respondents would worry if a problem was serious if they had pain, whether or not they would seek a doctor urgently if they were in pain, and whether or not they would take medication if in pain. None of these questions directly addressed the issue of seeking care for pain relief. We felt that the first question measured programme theory 1, uncertainty and anxiety about seriousness of the problem, so we included it in programme theory 1. On reflection, we felt that the second question was too generic and might simply be another way of measuring tendency to make 'clinically unnecessary' use of services. Eighteen per cent of respondents reported that they would be unlikely to take medication for that pain. We used this variable with the rationale that people who did not take medication might seek pain relief from services.
- Programme theory 6, delayed long enough. We asked one question to address this, concerning whether or not people wanted to see a doctor straight away once they had made the decision to get help; 22% of respondents strongly agreed with this. On reflection, we had concerns about the extent to which this question addressed the programme theory because it did not include delaying seeking health care. We decided not to use it in the logistic regression because we felt that it was measuring a more generic issue than the one we had tried to measure.
- Programme theory 7, stressful lives leading to difficulty coping and need for low-burden services. We asked two sets of questions to address this programme theory. The first focused on stress and ability to cope, and the second focused on the burden attached to seeking care. We asked three questions about stressful lives and coping: 14% of respondents felt overwhelmed when faced with an unexpected health problem, 10% generally found their lives very stressful, and 12% probably had no one to look after them if they were ill. Two of these questions had a large number of missing values owing self-completion. We asked six questions related to burden of seeking care and found that, for example, 36% preferred services without appointments.
- Programme theory 8, compliance with family or friends. We asked one question about how likely people would be to check with family or friends about the action that they should take; 19% of respondents were very likely to do this.

- Programme theory 9, perceptions and experiences of services. We asked three questions to address this programme theory, all of which were self-completed and so had missing values. For example, 15% strongly agreed/agreed that they preferred EDs because they could have tests done quickly.
- Programme theory 10, frustration with access to GP. We asked four questions related to this programme theory and found that, for example, 49% reported having difficulty getting a GP appointment at their surgery.

The programme theories varied in prevalence among the population, from 4% not feeling confident about when to contact a doctor or to look after the problem themselves (programme theory 1) to 74% feeling that they wanted to see a doctor immediately once they had made up their minds to do so (programme theory 6).

TABLE 10 Distribution of variables addressing the 10 programme theories in the survey

PT and question	Numbers (%) unweighted	Weighted (%)	Source	Numbers missing
1, Risk: uncertainty causes anxiety				
Worry that pain is a sign of something serious			IA	
Very likely	415 (14)	14		
Fairly likely	876 (30)	31		
Not very likely	1138 (39)	40		
Not likely at all	358 (12)	12		
Depends	119 (4)	4		
Confident in deciding to see a doctor or self-care			SC	597
Very confident	993 (34)	40		
Fairly confident	1130 (49)	50		
Not very confident	89 (4)	5		
Never had problem	97 (4)	5		
2, Risk: previous traumatic event				
Had problem, did not see doctor and was serious			IA	1
Yes	687 (24)	23		
No	2219 (76)	77		
3, Risk: responsibility for others (see vignettes in* Table 8*)				
4, Speed: need to get back to normal				
Action if not affecting daily activities			IA	
Contact doctor or nurse	262 (9)	10		
Wait and see	1617 (56)	57		
Deal with it myself	963 (33)	32		
Depends	64 (2)	2		
Action if stopping sleep			IA	
Contact doctor or nurse	831 (29)	30		
Wait and see	1430 (49)	49		
Deal with it myself	604 (21)	19		
Depends	41 (1)	1		

TABLE 10 Distribution of variables addressing the 10 programme theories in the survey (*continued*)

PT and question	Numbers (%) unweighted	Weighted (%)	Source	Numbers missing
Action if affecting family or work			IA	
Contact doctor or nurse	1938 (67)	69		
Wait and see	736 (25)	25		
Deal with it myself	143 (5)	5		
Depends	89 (3)	2		
Sleep			Computed for DEUCE	
Do not see doctor	2010 (69)			
See doctor if sleep loss	634 (22)			
See doctor if other loss	262 (9)			
Work			Computed for DEUCE	
Do not see doctor	935 (32)			
See doctor if work loss	1709 (59)			
See doctor if other loss	262 (9)			
5, Speed: need to seek pain relief				
See a doctor urgently for pain			IA	
Very likely	294 (10)	10		
Fairly likely	691 (24)	25		
Not very likely	1269 (44)	43		
Not at all likely	554 (19)	18		
Depends	98 (3)	3		
Likely to take medication to stop the pain			IA	
Very likely	1081 (37)	37		
Fairly likely	1257 (43)	44		
Not very likely	376 (13)	13		
Not at all likely	135 (5)	5		
Depends	57 (2)	2		
6, Speed: waited long enough				
Once I've made a decision I want to see the doctor straightaway			IA	
Strongly agree	629 (22)	21		
Agree	1525 (53)	53		
Neither	400 (14)	14		
Disagree/strongly disagree	352 (12)	11		
7a, Stressful lives				
Overwhelmed when have health problem			SC	597
Strongly agree/agree	314 (14)	17		
Neither	537 (23)	24		
Disagree	872 (38)	35		

continued

TABLE 10 Distribution of variables addressing the 10 programme theories in the survey (*continued*)

PT and question	Numbers (%) unweighted	Weighted (%)	Source	Numbers missing
Strongly disagree/disagree	487 (17)	20		
Never had problem	99 (4)	4		
Find life stressful			IA	
Very	297 (10)	10		
Quite	637 (22)	24		
A bit	1316 (45)	46		
Not at all	637 (22)	20		
Don't know	19 (1)	1		
Someone to care for them if they are ill			SC	597
Definitely	1240 (54)	54		
Probably	697 (30)	31		
Probably not	280 (12)	10		
Don't know	92 (4)	5		
7b, Low burden				
Can take time off work to see GP			IA	
Yes	1078 (37)	41		
Yes but not easy	275 (10)	10		
No	127 (4)	5		
N/A or missing	1426 (49)	44		
Travel to ED			IA	
Very difficult	610 (21)	19		
Neither	269 (9)	10		
Fairly easy	1172 (40)	42		
Very easy	855 (29)	30		
Opening hours a problem			SC	597
Strongly agree/agree	603 (26)	27		
Neither	608 (26)	26		
Disagree/strongly disagree	1098 (48)	46		
Prefer no appointments			SC	597
Strongly agree/agree	825 (36)	36		
Neither	799 (35)	34		
Disagree/strongly disagree	685 (30)	30		
Want convenient times			SC	597
Strongly agree/agree	1348 (58)	59		
Neither	708 (31)	30		
Disagree/strongly disagree	253 (11)	11		
Willing to wait in waiting room			IA	
Strongly agree/agree	2351 (81)	80		
Neither	194 (7)	7		
Disagree/strongly disagree	361 (12)	13		

TABLE 10 Distribution of variables addressing the 10 programme theories in the survey (*continued*)

PT and question	Numbers (%) unweighted	Weighted (%)	Source	Numbers missing
8, Compliance with family/friends				
Check with family and friends for what to do			IA	
Very likely	554 (19)	21		
Fairly likely	1061 (37)	39		
Not very likely	746 (26)	24		
Not at all likely	545 (19)	17		
9, Perceptions and experiences of services				
Prefer ED: I can get tests done quickly			SC	597
Strongly agree/agree	353 (15)	17		
Neither	797 (35)	35		
Strongly disagree/disagree	1159 (50)	48		
ED doctors know more than GPs			SC	597
Strongly agree/agree	418 (18)	19		
Neither	1041 (45)	45		
Strongly disagree/disagree	850 (37)	36		
No confidence in GP			SC	597
Strongly agree	76 (3)	4		
Agree	165 (7)	7		
Neither	446 (19)	20		
Disagree	1008 (44)	43		
Strongly disagree	538 (23)	22		
Other	76 (3)	3		
10, Frustration with access to GP				
Hard to get GP appointment at my surgery			SC	597
Strongly agree/agree	1137 (49)	51		
Neither	353 (15)	16		
Disagree/strongly disagree	819 (36)	33		
Registered with GP			IA	1
Yes	2840 (98)	97		
No	65 (2)	3		
Work or looking after family makes it difficult to see GP			SC	597
Strongly agree/agree	410 (18)	21		
Neither	455 (20)	21		
Strongly disagree/disagree	1197 (52)	50		
N/A	247 (11)	8		
Believe people use ED because they cannot get GP appointment			IA	
Strongly agree/agree	2441 (84)	83		
Neither	339 (12)	12		
Disagree/strongly disagree	126 (4)	5		

IA, interviewer administered; N/A, not applicable; PT, programme theory; SC, self-complete.

Variation in programme theories by subgroup of the population

We tested for differences in the prevalence of each programme theory by four subgroups of age group, households with children aged < 5 years (to represent parents of young children), deprivation quintile and chronic illness status. We selected one variable only to represent each programme theory (*Table 11*). The main findings were:

- We expected to see young adults, households with children aged < 5 years, people living in deprived communities and people with long-term limiting illness reporting a higher prevalence of programme theories based on our WP1 review. This expectation was met for many of the programme theories (see *Table 11*). Strikingly, those in the most deprived quintile were three times more likely to feel overwhelmed when faced with a health problem than those in the most affluent quintile, and twice as likely to contact a doctor or nurse if a health problem was affecting their work or sleep.
- Individuals reported a mean of 2.3 programme theories. Some subgroups had higher means in the unweighted and weighted analysis (weighted reported): people in the most deprived quintile (mean 2.8; $p < 0.001$), people with limiting long-term illness (mean 2.9; $p < 0.001$) and people aged < 45 years (mean 2.4; $p = 0.03$). There were no differences in the mean number of programme theories by parental status.

TABLE 11 Subgroups with higher proportions of the 10 programme theories[a]

PT	Focus of PT	Variable used to represent PT	Prevalence, *n/N* (%)	Age group (years) (%)	Household with children aged < 5 years (%)	Deprivation groups (%)	Long-term limiting illness (%)
1	Uncertainty	Not confident in deciding when to go to a doctor	89/2309 (4)	**18–24 (10)**	No (5)	**1 (most) (9)**	No (4)
				25–34 (5)	Children (4)	2 (3)	Non-limiting (5)
				35–44 (4)	($p = 0.77$)	3 (3)	Limiting (7)
				45–54 (4)		4 (3)	Don't know (0)
				55–64 (5)		5 (affluent) (5)	($p = 0.43$)
				65–74 (4)		($p = 0.001$)	
				≥ 75 (3)			
				($p = 0.05$)			
2	Previous traumatic event	Did not see a doctor previously when it was serious	689/2906 (24)	18–24 (21)	No (23)	1 (most) (22)	No (16)
				25–34 (22)	Children (23)	2 (26)	Non-limiting (30)
				35–44 (23)	($p = 0.93$)	3 (22)	**Limiting (44)**
				45–54 (24)		4 (24)	Don't know (12)
				55–64 (25)		5 (affluent) (22)	($p < 0.001$)
				65–74 (26)		($p = 0.64$)	
				≥ 75 (19)			
				($p = 0.48$)			

TABLE 11 Subgroups with higher proportions of the 10 programme theories[a] (*continued*)

PT	Focus of PT	Variable used to represent PT	Prevalence, *n/N* (%)	Age group (years) (%)	Household with children aged < 5 years (%)	Deprivation groups (%)	Long-term limiting illness (%)
3	Fear of consequences	999 or ED for a child but not for adult illness vignette	1148/2906 (40)	18–24 (31)	**No (40)**	**1 (most) (45)**	No (37)
				25–34 (36)	Children (33)	2 (42)	Non-limiting (40)
				35–44 (34)	($p = 0.02$)	3 (35)	**Limiting (49)**
				45–54 (42)		4 (40)	Don't know (18)
				55–64 (46)		5 (affluent) (35)	($p < 0.001$)
				65–74 (46)		($p = 0.006$)	
				≥ 75 (43)			
				($p < 0.001$)			
4	Back to normal	Would go to doctor if losing sleep or work only	262/2906 (9)	18–24 (11)	No (9)	**1 (most) (18)**	No (10)
				25–34 (10)	**Children (13)**	2 (8)	Non-limiting (6)
				35–44 (10)	($p = 0.03$)	3 (8)	**Limiting (11)**
				45–54 (8)		4 (8)	**Don't know (15)**
				55–64 (8)		5 (affluent) (7)	($p = 0.04$)
				65–74 (6)		($p < 0.001$)	
				≥ 75 (14)			
				($p = 0.10$)			
5	Pain relief	Try to see a doctor urgently with pain without taking medication	104/2906 (4)	18–24 (2)	No (4)	1 (most) (2)	No (4)
				25–34 (4)	Children (4)	2 (4)	Non-limiting (3)
				35–44 (5)	($p = 0.81$)	3 (4)	Limiting (3)
				45–54 (3)		4 (4)	Don't know (0)
				55–64 (4)		5 (affluent) (4)	($p = 0.76$)
				65–74 (3)		($p = 0.48$)	
				≥ 75 (5)			
				($p = 0.30$)			
6	Delayed long enough	Once I've made up my mind I want to see the doctor immediately	2154/2906 (74)	18–24 (70)	No (74)	**1 (most) (78)**	No (76)
				25–34 (73)	Children (75)	2 (70)	Non-limiting (71)
				35–44 (76)	($p = 0.89$)	3 (70)	Limiting (75)
				45–54 (73)		**4 (77)**	Don't know (31)
				55–64 (77)		**5 (affluent) (77)**	($p = 0.002$)
				65–74 (75)		($p = 0.009$)	
				≥ 75 (77)			
				($p = 0.41$)			

continued

TABLE 11 Subgroups with higher proportions of the 10 programme theories[a] (*continued*)

PT	Focus of PT	Variable used to represent PT	Prevalence, *n*/*N* (%)	Age group (years) (%)	Household with children aged < 5 years (%)	Deprivation groups (%)	Long-term limiting illness (%)
7	Stressful lives	Overwhelmed when have an unexpected health problem	314/2309 (15)	**18–24 (17)**	No (15)	**1 (most) (25)**	No (14)
				25–34 (22)	**Children (21)**	**2 (19)**	Non-limiting (12)
				35–44 (19)	($p = 0.04$)	3 (13)	**Limiting (24)**
				45–54 (12)		4 (12)	**Don't know (45)**
				55–64 (15)		5 (affluent) (8)	($p < 0.001$)
				65–74 (12)		($p < 0.001$)	
				≥ 75 (10)			
				($p = 0.003$)			
8	Compliance with advice	Check with family and friends	554/2906 (19)	**18–24 (28)**	No (20)	**1 (most) (26)**	No (20)
				25–34 (26)	**Children (26)**	2 (23)	Non-limiting (21)
				35–44 (23)	($p = 0.02$)	3 (17)	Limiting (22)
				45–54 (15)		4 (18)	Don't know (9)
				55–64 (17)		5 (affluent) (18)	($p = 0.62$)
				65–74 (17)		($p = 0.02$)	
				≥ 75 (17)			
				($p < 0.001$)			
9	Perceptions and prior experiences of care	Preference for ED due to tests	353/2309 (15)	**18–24 (21)**	No (16)	**1 (most) (26)**	No (17)
				25–34 (18)	Children (19)	**2 (19)**	Non-limiting (13)
				35–44 (20)	($p = 0.28$)	3 (13)	Limiting (19)
				45–54 (12)		4 (11)	Don't know (0)
				55–64 (16)		5 (affluent) (12)	($p = 0.20$)
				65–74 (12)		($p < 0.001$)	
				≥ 75 (17)			
				($p = 0.07$)			
10	Frustration with GP access	Hard to get GP appointment	1137/2309 (49)	**18–24 (54)**	No (49)	**1 (most) (57)**	No (17)
				25–34 (53)	**Children (63)**	**2 (52)**	Non-limiting (13)
				35–44 (55)	($p < 0.001$)	3 (50)	**Limiting (19)**
				45–54 (54)		4 (48)	**Don't know (0)**
				55–64 (50)		5 (affluent) (47)	($p = 0.07$)
				65–74 (43)		($p = 0.07$)	
				≥ 75 (42)			
				($p = 0.02$)			

PT, programme theory.
a Groups in bold have higher prevalence of programme theories. Weighted analysis shown. Distribution shown if $p < 0.10$.

Description of other influences

The distribution of other influences is shown in *Table 12*. The key findings were:

- Awareness of services. We asked six questions related to awareness of services. Four questions showed that a small percentage of respondents lacked confidence in knowing the range of NHS services that they could use (10%), knowing when services are open or how they can easily find this out (9%), and especially knowing what tests could be undertaken in different NHS services (22%) and how to contact a GP out of hours (18%). We also asked two questions about using the internet to diagnose problems or to find out what action to take; 49% were not likely to look things up on the internet to see what the problem was and 58% were not likely to use it to see what to do. This large proportion of non-internet users for health has implications for new digital NHS services, such as 111 Digital.
- Recursivity. We asked one question to address learnt behaviour; 54% of people felt that they were right to contact a service if that service carried out tests on them.
- Health literacy. The full range of health literacy scores were seen for both domains.
- Recent use of services. We asked people if they had used the three services recently for themselves or for someone else (e.g. calling 999 to request an ambulance for their elderly parent). Recent use varied by service: 15% had used the ambulance service within the past 12 months, 14% had used an ED and 83% had used a GP in their practice.
- Overuse of services. We asked three questions about this: one about each service. The majority of respondents agreed or strongly agreed that the three services were used by people who did not need them. Only a small percentage disagreed or strongly disagreed about this (3%, 3% and 9% for ambulance, ED and GP, respectively). NatCen recommended that we ask a question to counterbalance these three questions. We asked if respondents felt that people were reluctant to use an ED for an urgent problem; 46% of respondents agreed, highlighting that people perceive that both overuse and underuse of services may be seen as a problem.

Explaining tendency to seek 'clinically unnecessary' care

We present the regressions explaining the tendency to contact six services: emergency ambulance, ED adult, ED child, ED all, GP and any of these services. We present a univariate analysis first, followed by a multivariable analysis. Below, we display variables by groups representing similar concepts because one variable within a group might be selected instead of another correlated variable.

TABLE 12 Distribution of variables measuring other influences in the survey

Influence and question	Numbers (%) unweighted	Numbers (%) weighted	Source	Numbers missing
Awareness of services				
Know the range of NHS services to use			IA	1
Very confident	1436 (49)	48		
Fairly confident	1189 (41)	42		
Can find out when NHS services are open			IA	1
Very confident	1487 (51)	51		
Fairly confident	1163 (40)	40		
Not/not at all	255 (9)	9		
Can find out what tests are available at different NHS services			IA	1
Very confident	963 (33)	32		
Fairly confident	1307 (45)	45		
Not at all	635 (22)	22		

continued

TABLE 12 Distribution of variables measuring other influences in the survey (*continued*)

Influence and question	Numbers (%) unweighted	Numbers (%) weighted	Source	Numbers missing
How to contact GP OOH			IA	1
Very confident	1338 (46)	44		
Fairly confident	1056 (36)	37		
Not very confident	389 (13)	15		
Not at all confident	122 (4)	4		
Look on internet to see what the problem is			IA	
Very likely	667 (23)	24		
Fairly likely	797 (27)	30		
Not very likely	472 (16)	17		
Not at all likely	940 (32)	29		
(Never had problem)	30 (1)	1		
Look on internet to decide what to do			IA	
Very likely	428 (15)	15		
Fairly likely	752 (26)	28		
Not very likely	680 (23)	26		
Not at all likely	1016 (35)	30		
(Never had problem)	30 (1)	1		
Recursivity				
If tests are done I was right to contact the service			SC	597
Strongly agree/agree	1236 (54)	52		
Neither	793 (34)	36		
Disagree/strongly disagree	280 (12)	12		
Health literacy				
Ability to communicate (mean, SD and range)	3.9, SD 0.66 (range 1–5)		SC	637
Understand information (mean and range)	4.0, SD 0.64 (range 1–5)		SC	637
Recent use of services for self or someone else				
Ambulance use			IA	1
Never	1349 (46)	46		
≥ 12 months	1108 (38)	38		
< 12 months	448 (15)	16		
Ambulance frequent user			IA	1
0–3 times in 12 months	2842 (98)	98		
≥ 3 times in 12 months	64 (2)	2		
ED use			IA	1
Never	411 (14)	15		
≥ 12 months	1478 (51)	49		
6–12 months	366 (13)	13		
3–6 months	234 (8)	9		
< 3 months	416 (14)	15		

TABLE 12 Distribution of variables measuring other influences in the survey (*continued*)

Influence and question	Numbers (%) unweighted	Numbers (%) weighted	Source	Numbers missing
ED frequent user			IA	1
0–3 times in 12 months	2738 (94)	94		
≥ 3 times in 12 months	167 (6)	6		
Contacted GP			IA	1
Never	65 (2)	3		
≥ 12 months	454 (16)	16		
6–12 months	484 (17)	17		
3–6 months	518 (18)	18		
< 3 months	1384 (48)	46		
Perceptions of service overuse				
Too many use ambulance when not needed			IA	
Strongly agree/agree	2516 (87)	86		
Neither	313 (11)	11		
Disagree/strongly disagree	77 (3)	3		
Too many use ED when not needed			IA	
Strongly agree/agree	2515 (87)	86		
Neither	291 (10)	10		
Disagree/strongly disagree	100 (3)	4		
Too many use GP when not needed			IA	
Strongly agree/agree	2082 (72)	70		
Neither	577 (20)	20		
Disagree/strongly disagree	247 (8)	9		
Reluctance to use ED with urgent problem			IA	
Strongly agree/agree	1348 (46)	48		
Neither	734 (25)	25		
Disagree/strongly disagree	824 (28)	28		

IA, interviewer administered; OOH, out of hours; SC, self-complete.

Tendency to call the emergency ambulance service (adult or child)

A total of 11% (328/2906) of respondents ticked 'call an ambulance' for any of the six vignettes. In a univariate analysis respondents had a higher tendency to call an ambulance if any of the following applied (see *Appendix 9*, *Table 20*):

- sociodemographic characteristics – male, BAME
- resources – social classes III manual/IV/V, most deprived communities, no personal access to the internet, no car
- health – in fair/poor health, with limiting long-term illness
- programme theories – worry if in pain (programme theory 1), if losing sleep or loss of daily activities (programme theory 4), if overwhelmed when faced with health problem (programme theory 7), do not have someone to care for them when they are ill (programme theory 7), find it difficult to travel to the ED (programme theory 7), prefer service with no appointments (programme theory 7), prefer the ED for getting tests done quickly (programme theory 9), think ED doctors know more than GPs (programme theory 9) and have no confidence in their GP (programme theory 9)

- awareness of services – not confident about finding out when NHS services are open, unlikely to look up on the internet what a problem is or what to do about it
- recursivity – feeling that if tests are undertaken they were right to contact a service
- health literacy – low levels of understanding information and ability to engage with health professionals
- recent service use – recent use of ambulance, frequent use of ambulance, frequent use of ED
- attitudes to overuse of services – disagree that too many people use EDs and GPs when not needed.

There were some unusual findings:

- People who did not have work or family responsibilities that made seeing their GP difficult had a higher tendency to call an ambulance.
- People who disagreed that people use an ED because they cannot get a GP appointment were more likely to call an ambulance.

Based on a complete-case analysis of 2203 out of 2906 (76%) of the data set, the full model containing all of the statistically significant variables identified above is given in *Appendix 9*, *Table 21*. The events per variable was 8.7 (235/27), showing that there was some risk of overfitting within this model. The following variables made an independent contribution in a *multivariable analysis*, with the following groups having a *higher* tendency to contact an emergency ambulance (see *Appendix 9*, *Table 21*):

- sociodemographic characteristics – male, BAME, social class III manual
- resources – households with no car, no personal access to the internet
- programme theories – programme theory 1, people who worry that a pain is sign of something serious, and programme theory 7, people who feel overwhelmed when they have an unexpected health problem. Findings for programme theory 8 and programme theory 10 were not straightforward. People who were fairly likely to check with family and friends had a lower tendency than those who were not likely to do this; this finding was not similar for those ticking very likely, as might be expected. Programme theory 10, work or looking after family make it difficult to see a GP, was the opposite of what might be expected, in that people who did not face this problem had a higher tendency to contact the ambulance service
- health literacy – people with low understanding of information
- recent service use – people who have used an emergency ambulance, particularly in the past year.

All six vignettes were included here, but the tendency to call an ambulance was dominated by the child vignettes in that around three-quarters of those with this tendency had ticked a child vignette. There were no statistically significant interactions between the samples completing the cough/rib/Saturday and the samples completing the vomiting/back pain/Wednesday vignettes.

In summary, the key findings were:

- The two child vignettes dominated the tendency to call an ambulance.
- A large number of variables related to people having low resources, including social class, low health literacy and feeling overwhelmed when faced with a health problem.
- Lack of a car featured here, indicating that an ambulance may act as transportation to an ED for people with low resources.
- People who had used the ambulance recently had a higher tendency to select it in the vignettes. This could be explained by someone having an ongoing health problem or by learnt behaviour in that having used it once, they feel happier to use it again.

Tendency to attend an emergency department for an adult

In total, 18% (512/2906) of respondents ticked 'go to an ED' for any of the four adult vignettes. In a *univariate analysis* respondents had a higher tendency to go to an ED for adults if any of the following applied (see *Appendix 9*, *Table 22*):

- sociodemographic characteristics – male, BAME, social classes III manual/IV/V, most deprived quintile, urban areas
- resources – none
- health – none
- programme theories – very likely to worry that pain was a sign of something serious (programme theory 1), lost functioning of daily living such as work or sleep (programme theory 4), overwhelmed when they have health problem (programme theory 7), very likely to check with family or friends if they are ill (programme theory 8), prefer EDs because can get tests done quickly (programme theory 9) and think ED doctors know more than GPs (programme theory 9)
- awareness of services – none
- recursivity – if tests are done they were right to go to a service
- health literacy – none
- recent service use – recent and frequent use of ED
- overuse of services – think that too many people use ambulance and ED.

Based on a complete-case analysis of 2309 out of 2906 (80%) of the data set, the full model containing all of the statistically significant variables identified above is given in *Appendix 9*, *Table 23*. The events per variable was 32.4 (389/12), showing that there was little risk of overfitting for this model. The following variables made an independent contribution in a multivariable analysis, with the following groups more likely to have a tendency to contact an ED for an adult (see *Appendix 9*, *Table 23*):

- sociodemographic characteristics – male, BAME
- programme theories – loss of functioning, specifically work (programme theory 4), prefer EDs because can get tests done quickly (programme theory 9)
- recursivity – think that if tests are done they were right to go to a service
- beliefs about overuse – if people do not think there is a problem with too much use of EDs and do not think people are reluctant to use an ED.

Four vignettes were included here, but the tendency to attend an ED was dominated by the painful rib vignettes in that around two-thirds of those with a tendency had ticked the rib vignette. There was only one statistically significant interaction between the samples completing the cough/rib/Saturday and those completing the vomiting/back pain/Wednesday vignettes in the final model. This occurred with ethnic group ($p = 0.012$). People from BAME communities were more likely to tick 'clinically unnecessary' options for the cough/rib/Saturday vignettes than white people. White people were more likely to tick 'clinically unnecessary' options for the cough/rib/Saturday vignettes than for the diarrhoea/back/Wednesday vignettes. People from BAME communities were slightly less likely to tick 'clinically unnecessary' options for the diarrhoea/back/Wednesday vignettes than white people were to tick 'clinically unnecessary' options for the cough/rib/Saturday vignettes. Interactions should be interpreted with caution.

When the binary comparison was limited to those ticking attending an ED compared with those selecting lower levels of care only, the results were very similar. All of the variables in the original model featured in this model except programme theory 4, loss of functioning. There were some additional variations by geographical region (no specific region was statistically significantly different): programme theory 1, pain is a sign of something serious, and that too many people call 999 when they do not need to.

In summary, the key findings were:

- There was evidence of the influence of preference for EDs, getting positive feedback about the validity of contacting a service if tests are undertaken by that service and beliefs that EDs are not overused.

Tendency to attend an emergency department for a child

In total, 33% (949/2906) of respondents ticked 'go to an ED' for any of the two child vignettes. In a *univariate analysis* respondents had a higher tendency to an ED for a child if any of the following applied (see *Appendix 9*, *Table 24*):

- sociodemographic characteristics – aged 55–74 years, male, BAME, Wales and Scotland
- resources – none
- health – none
- programme theories – previous traumatic event (programme theory 2), sleep loss (programme theory 4), loss of work (programme theory 4), not very likely to take medication (programme theory 5), prefer no appointments (programme theory 7), willing to wait in the waiting room if it means being seen that day (programme theory 7) and prefer an ED because get tests more quickly (programme theory 9)
- awareness of services – none
- recursivity – tests are carried out then think it was right to contact the service
- recent service use – used ED recently
- beliefs about overuse of services – believe too many people use ED when not needed.

There were some unusual findings:

- Households with children aged < 5 years had a lower tendency to go to an ED for children.
- In the responses to look up on the internet to find out what to do, the 'missing' category is statistically significant.

Based on a complete-case analysis of 2304 out of 2906 (79%) of the data set, the full model containing all of the statistically significant variables identified above is given in *Appendix 9*, *Table 25*. The events per variable was 44.4 (754/17), showing that there was little risk of overfitting for this model. The following variables made an independent contribution in a *multivariable analysis*, with the following groups more likely to have a tendency to contact an ED for a child (see *Appendix 9*, *Table 25*):

- sociodemographic characteristics – aged 45–74 years, male, BAME, Wales and Scotland
- programme theories – willing to wait in the waiting room if it means being seen that day (programme theory 7), prefer ED because get tests more quickly (programme theory 9).

Two vignettes were included here: the tendency to attend an ED was evenly distributed across the Wednesday and Saturday child vignettes. There were no statistically significant interactions between the samples completing the two child vignettes in the final model.

When the binary comparison was limited to those ticking attending an ED compared with those selecting lower levels of care only, the results were very similar. All the variables in the original model featured in this model. There were some additional variables of looking on the internet to decide what to do and thinking that too many people go the ED.

In summary, the key findings were:

- The attraction of the ED is prominent here for allowing same-day contact and access to tests.
- The high tendency in Wales and Scotland to attend an ED is difficult to explain.

Tendency to attend an emergency department (all)

In total, 42% (1216/2906) of respondents ticked 'go to an ED' for any of the six vignettes. In a *univariate analysis* respondents had a higher tendency to an ED if any of the following applied (see *Appendix 9*, *Table 26*):

- sociodemographic characteristics – male, BAME, social classes III manual/IV/V, from Wales or Scotland, were not in a household with children aged < 5 years
- resources – none
- health – none
- programme theories – loss of functioning (programme theory 4), preference for no appointments (programme theory 7), willing to wait in a waiting room to be seen that day (programme theory 7), preference for ED because can get tests quickly (programme theory 9), think ED doctors know more than GPs (programme theory 9)
- awareness of services – none
- recursivity – if test were done they were right to contact that service
- health literacy – none
- recent service use – recent and frequent use of ED
- beliefs about overuse of services – do not think that too many people use ambulance and ED when not needed.

There were some unusual findings:

- If they were not likely to take medication, then they had a lower tendency.
- If they were 'missing' for looking things up on the internet, then they had a lower tendency.

Based on a complete-case analysis of 2304 out of 2906 (79%) of the data set, the full model containing all the statistically significant variables identified above is given in *Appendix 9*, *Table 27*. The events per variable was 45.6 (959/21) showing that there was little risk of overfitting for this model. The following variables made an independent contribution in a *multivariable analysis*, with the following groups more likely to have a tendency to contact an ED:

- sociodemographic characteristics – male, BAME, Wales and Scotland
- programme theories – loss of daily activities (programme theory 4), willing to wait in a waiting room to be seen that day (programme theory 7), prefer ED because can get tests quickly (programme theory 9)
- beliefs about overuse of services – do not think that too many people use EDs when not needed.

All six vignettes were included here but the tendency to attend an ED was dominated by both of the child vignettes and the painful rib vignette. There were no statistically significant interactions between the samples completing the cough/rib/Saturday and those completing the vomiting/back pain/Wednesday vignettes in the final model.

The analysis above compared ED with 'not ED'. The 'not ED' group included people who called an emergency ambulance as well as those calling less urgent options than the ED. Another analysis comparing only those ticking ED with those ticking the less urgent options gave very similar results. Age was included, with older people having a higher tendency, and programme theory 7, willingness to wait in a waiting room to be seen that day, was not included.

In summary, the key findings were:

- People who are attracted by characteristics of EDs and want to address loss of daily activities such as work and sleep have a higher tendency to contact an ED.
- Interestingly, negative views of GPs did not feature here.
- The high tendency to attend an ED in Wales and Scotland is difficult to explain.

Tendency to call a general practitioner

In total, 33% (961/2906) of respondents ticked 'go to GP' for the two adult illness vignettes. In a *univariate analysis* respondents had a higher tendency to contact a GP if any of the following applied (see *Appendix 9*, *Table 28*):

- sociodemographic characteristics – aged over 65 years, BAME, different regions/countries of Britain including Wales, Scotland and London
- resources – no car, no access to internet
- health – fair/poor health and with limiting long-term illness
- programme theories – likely to worry that pain was sign of something serious (programme theory 1), not confident in deciding to see a doctor or self-care (programme theory 1), loss of functioning for daily activities (programme theory 4), feeling overwhelmed when faced with health problems (programme theory 7), travel to ED difficult (programme theory 7), prefer no appointments (programme theory 7), willing to wait in waiting room if can be seen that day (programme theory 7), very likely to check with family or friends about what to do (programme theory 8), prefer ED for quick tests (programme theory 9), registered with a GP (opposite of programme theory 10)
- awareness of services – not confident in finding out when services are open, not confident in how to contact GP out of hours, would not look up on the internet about what to do about a health problem
- recursivity – if tests are done they feel right to contact that service
- health literacy – people with low health literacy
- recent service use – frequent ambulance use, recent use of GP
- beliefs about overuse of services – do not think too many people use GP when do not need to, think people are reluctant to use EDs.

Based on a complete-case analysis of 2264 out of 2906 (78%) of the data set, the full model containing all of the statistically significant variables identified above is displayed in *Appendix 9*, *Table 29*. The events per variable was 24.9 (746/30), showing that there was little risk of overfitting for this model. The following variables made an independent contribution in a *multivariable analysis*, with the following groups more likely to have a tendency to contact a GP (see *Appendix 9*, *Table 29*):

- sociodemographic characteristics – > 75 years old, BAME, Wales and Scotland and south of England
- programme theories – worry that pain is a sign of something serious (programme theory 1), feeling overwhelmed when faced with a health problem (programme theory 7), ease of access to GP (opposite of programme theory 10)
- recursivity – if tests are done then right to contact that service
- health literacy – people with low health literacy in terms of understanding information
- recent service use – recent use of GP but the variable does show consistent pattern.

Only two vignettes were included here, with a tendency to contact a GP dominated by the diarrhoea/vomiting vignette in that two-thirds of people with a tendency for 'clinically unnecessary' use of a GP ticked this vignette rather than the cough vignette. There were only two statistically significant interactions by vignette in the final model. The first was with age ($p = 0.013$) but none of the interaction levels was statistically significant. The second was with people who thought that having tests was a sign that they were right to attend a service (recursivity). People who experienced recursivity were much more likely to tick the cough/rib/Saturday vignettes than people not experiencing recursivity. People who did not experience recursivity were more likely to not experience it for the diarrhoea/back/Wednesday vignettes than for the cough/rib/Saturday vignettes. People who experienced recursivity were more likely to do so for diarrhoea/back/Wednesday vignettes than were those not experiencing it for cough/rib/Saturday vignettes. Caution is needed when interpreting interactions.

The analysis above compared GP with 'not GP'. The 'not GP' group included people who ticked an emergency ambulance or attendance at an ED, as well as those calling less urgent options than ED.

Another analysis comparing only those ticking GP with those ticking the less urgent options of another NHS service, NHS 111 or self-care gave a similar regression. Region was replaced by BAME and the belief that too many people use GPs.

In summary, the key findings were:

- Older people, people with low health literacy and who feel overwhelmed when faced with a health problem, and people who do not have access difficulties to general practice, have a higher tendency to use a GP.

Tendency to make any 'clinically unnecessary' demand for any service

In total, 66% (1841/2906) of respondents ticked a 'clinically unnecessary' option for any of the six vignettes. In a *univariate analysis* respondents had a higher tendency to do this if any of the following applied (see *Appendix 9*, *Table 30*):

- sociodemographic characteristics –aged > 65 years, male, BAME, social classes III non-manual–V, London or Scotland, not living in households with children aged < 5 years
- resources – no car, no personal access to the internet
- health – poor health, limiting long-term illness
- programme theories – worry that pain is a sign of something serious (programme theory 1), never had to decide about seeing a doctor (programme theory 1), loss of functioning in daily activities (programme theory 4), likely to take medication if in pain (opposite of programme theory 5), overwhelmed when have a health problem (programme theory 7), do not know if someone would care for them if ill (programme theory 7), find it difficult to travel to an ED (opposite of programme theory 7), prefer services with no appointments (programme theory 7), willing to wait in waiting room if seen that day (programme theory 7), check with family or friends for what to do (programme theory 8), prefer EDs for access to quick tests (programme theory 9), believe that ED doctors know more than GPs (programme theory 9), registered at GP (programme theory 10), family and work do not make it difficult to see GP (opposite of programme theory 10)
- awareness of services – not confident in finding out when NHS services are open, not confident in knowing how to contact GP out of hours, unlikely to look up on the internet what a problem is or what to do about it
- recursivity – if tests are carried out then this validates service use
- health literacy – lower health literacy levels for understanding information and ability to communicate with health professionals
- recent service use – frequent ED user, recent user of GP
- beliefs about overuse of services – too many people use ED and GP, think that people are reluctant to use EDs.

Based on a complete-case analysis of 2297 out of 2906 (79%) of the data set, the full model containing all of the statistically significant variables identified above is given in *Appendix 9*, *Table 31*. The events per variable was 22.6 (859/38), showing that there was little risk of overfitting for this model. The following variables made an independent contribution in a *multivariable analysis*, with the following groups more likely to have a tendency to make 'clinically unnecessary' use of services (see *Appendix 9*, *Table 31*):

- sociodemographic characteristics – aged 65–74 years, male, BAME
- health – limiting long-term illness
- programme theories – worry pain is a sign of something serious (programme theory 1), loss of functioning of daily activities (programme theory 4), overwhelmed when faced with a health problem (programme theory 7), prefer ED because get test quickly (programme theory 9), work and looking after family does not make it difficult to see a GP (opposite of programme theory 10)

- awareness of services – not confident in contacting GP out of hours, unlikely to look up on the internet what to do about a health problem
- recursivity – if tests are done then this validates service use
- recent service use – recent use of GP.

All six vignettes were included here but the back pain vignette did not feature strongly in this analysis compared with other vignettes. There was only one statistically significant interaction between the samples completing the cough/rib/Saturday and those completing the vomiting/back pain/Wednesday vignettes in the final model. People were likely to experience recursivity than not for the cough/rib/Saturday vignettes. People were more likely not to experience recursivity for the diarrhoea/back/Wednesday than for the cough/rib/Saturday vignettes. People were more likely to experience recursivity for the diarrhoea/back/Wednesday vignettes than not experience it for the cough/rib/Saturday vignettes. Caution is needed when interpreting interactions.

In summary, the key findings were:

- Many of the variables from the individual service analyses appeared within the univariate and multivariable analyses for tendency to contact any service.

Discussion

Summary of findings

The vignettes elicited different responses, with the tendency for 'clinically unnecessary' use of services varying between 7% and 49%. In particular, respondents had a higher tendency for 'clinically unnecessary' use of services for the child vignettes than the adult vignettes, supporting programme theory 3, responsibility for others. The prevalence of the 10 programme theories from WP1 varied within the population. Most programme theories varied by the population subgroups tested, with young adults, parents of young children, people living in deprived communities and people with chronic conditions more likely to display a number of the programme theories. Individuals from deprived communities and those with chronic conditions reported greater numbers of programme theories. Surprisingly, these subgroups did not feature in the tendency models. Subgroups of the population that did appear consistently as having a higher tendency for 'clinically unnecessary' use of services in the tendency models were older people, male people and people from BAME communities. Programme theories commonly explaining 'clinically unnecessary' use included programme theory 1, uncertainty, programme theory 4, inability to get on with daily life, programme theory 7, stressful lives and inability to cope, and programme theory 9, perceptions of quality of services where the attraction of EDs featured. There was evidence of recursivity at play, where people learnt that attending a service was the right thing to do. Low health literacy was associated with a tendency for 'clinically unnecessary' use of ambulances and general practice.

Links to programme theories

The survey results strongly supported four of the programme theories (*Table 13*): uncertainty of symptoms causing anxiety (programme theory 1), inability to get on with daily life (programme theory 4), stressful lives causing difficulty coping (programme theory 7) and the attraction of EDs (programme theory 9). Surprisingly, frustration with access to a GP appointment (programme theory 10) was not a prominent issue.

Links to wider literature

To our knowledge, few population surveys have been undertaken related to this topic. Our results are supported by the three population survey-based studies that we found. A population survey of 1256 people in Australia showed that 21% had used EDs in the previous year (compared with 35% of our population who were asked if they had attended for themselves or someone else); that decisions were

TABLE 13 Conclusions from testing programme theories in the survey

PT developed in WP1	Revised PT after WP2	Support for programme theory after WP3	Conclusion
1, Uncertainty about symptoms causing anxiety	Uncertainty about meaning and seriousness of symptoms causing anxiety	Different symptoms addressed in vignettes but the level of certainty respondents had about these symptoms was not measured Each symptom elicited different propensities so shows effect of symptoms on decision-making In total, 14% likely to worry that pain is serious. Young adults aged 18–24 years three times more likely than older adults and deprived twice as likely as affluent to think this. More likely to call ambulance (univariate and multivariable), attend ED for adult (univariate) and attend GP (univariate and multivariable)	Important PT affecting use of ambulance, ED and GP
2, Heightened awareness of risk as a result of experience or knowledge of traumatic health events leading to anxiety	Heightened awareness of risk to health as a result of personal experience or knowledge causing anxiety	In total, 24% of population have missed a serious event. People with a chronic condition are three times more likely than those without to report this More likely to attend ED for child (univariate)	Limited support
3, Fear of consequences when responsible for others	Responsibility and/or care for others causing distress and fear of consequences of not acting	Difference between options chosen for adult and child vignettes. Aged 55–74 years, people without small children, most deprived and people with chronic condition more likely to take 'clinically unnecessary' option Could not be measured in logistic regression	Not adequately tested
4, Inability to get on with daily life	Concern about actual or anticipated impact on daily activities/functioning	Any symptom affecting daily activity such as work or family responsibilities makes people go to doctor or nurse People with small children more likely and most deprived people at least twice as likely to have this programme theory More likely to call ambulance (univariate), ED adult (univariate and multivariable), ED child (univariate) and GP (univariate)	Important PT affecting use of ambulance, ED and GP
5, Need for immediate pain relief	Need for immediate relief of intolerable/unbearable symptoms (including pain)	Not measured well. 18% of population would not take medication if in pain. No subgroup differences More likely to attend ED for a child (univariate)	Not adequately tested

continued

TABLE 13 Conclusions from testing programme theories in the survey (*continued*)

PT developed in WP1	Revised PT after WP2	Support for programme theory after WP3	Conclusion
6, Waited long enough for things to improve	Unwillingness to continue current approach to managing symptoms (waiting/self-care/help-seeking) due to lack of resolution of the problem	Challenging to capture this in a question or set of questions and we did not measure it well. No clear subgroup differences Not tested in logistic regression	Not tested
7, Stressful lives, difficulty coping, so want ease of access to services	Reduced coping capacity due to physical and mental illness, stress and/or lack of access to resources	In total, 10% found life stressful and 14% were overwhelmed when faced with health problem. Young adults aged 18–44 years, people with young children and people with chronic conditions more likely to report this. Most deprived three times more likely than affluent In total, 36% prefer services with no appointments More likely to call ambulance (univariate and multivariable), ED for adult (univariate) and GP (univariate and multivariable)	Important PT affecting use of ambulance, ED and GP
8, Following the advice of trusted others	Directly or indirectly influenced by the advice or support of others, including social networks, health-care professionals and internet sources	In total, 19% were likely to ask family and friends if ill. Young adults aged 18–44 years, people with children and most deprived were more likely to do this More likely to attend ED adult (univariate) and GP (univariate)	Limited support
9, Perceptions or prior experiences of services	Perceptions, prior experiences and/or awareness/knowledge of services	In total, 15% prefer ED to get tests done quickly. Young adults aged 18–44 years were more likely than and most deprived were twice as likely as affluent people to report this More likely to call ambulance if attracted to ED and had no confidence in GP (univariate), more likely to attend ED for adult if attracted to ED (univariate and multivariable), ED for child if attracted to ED (univariate and multivariable regression) and GP if attracted to ED (univariate)	Important PT with support for attraction of ED affecting use of ED
10, Frustration with access to a GP	Frustration with inability to access an appropriate GP appointment	In total, 49% reported difficulty getting GP appointment. Adults aged 18–54 years and people with young children were more likely to report this More likely to use GP if there is ease of access to GP	Not everyone is frustrated by access to GP

PT, programme theory.

made by health-care professionals in one-third of cases and by others in one-fifth (aligning with our programme theory 8, compliance with the advice of trusted others); and that they attended because of the severity of their condition, because they could not find alternatives and because they felt that they would receive better care there (aligning with programme theory 9, perceptions of quality of care).[132]

The majority of our respondents felt that too many people use emergency services and general practice when they do not need to (87% and 72%, respectively). In 2003, a survey in a single UK general practice identified a similarly high percentage of the population (66%) who felt that people use EDs or GPs inappropriately.[135]

Our vignette results were similar to those of a vignette study of unnecessary ambulance use in Japan, where respondents were more likely to select the option of calling an emergency ambulance if they were male, elderly, did not have a car and were not hesitant about using ambulances.[6] The authors estimated that socioeconomic factors increased unnecessary ambulance use by an estimated 10–20%.[6] Although this was not a population survey, the results were also similar to those of a cross-sectional survey of over 900 ambulance users compared with those arriving at an ED themselves in Australia, which showed that ambulance users had higher self-rated sense of urgency, felt that the problem was serious, were in pain, felt that the ambulance service was for everyone regardless of the severity of the problem, and had used an ambulance in the past 6 months.[1] Reasons for using an ambulance included the urgency and severity of their condition, requiring special care, not having a car and financial concerns.[1] This reflects our findings that a lack of a car and socioeconomic issues affect 'clinically unnecessary' use of ambulances.

The role of anxiety in help-seeking has also been found in a vignette study, although the vignette addressed a much more serious issue of finding a lump and so did not explore the types of symptoms that we were interested in.[135]

Strengths and limitations

The survey was of a representative sample of the British population and, to our knowledge, is the first survey of population attitudes to emergency and urgent care in Britain. The response rate of 42% is lower than historical survey response rates, but is not unusual for similar health surveys undertaken in the UK. There are always issues with non-response bias in surveys; weighting was undertaken to address this for some of the analyses reported here. Weighting made little difference to the findings. The vignette approach used in the survey has not been used extensively when exploring population or patient perceptions in the field of emergency and urgent care research and is a useful way of testing a wide range of factors. However, it had some limitations. It identified tendency rather than actual 'clinically unnecessary' use of services and people may act differently in practice. For example, people may believe that their access to a GP appointment is poor but may be able to obtain a GP appointment when needed in practice, or they may believe that they would have no problem accessing a timely GP appointment but be surprised and frustrated when trying to do so for a specific health problem. We were unable to test two of the programme theories in the logistic regressions of the vignettes: programme theory 3, responsibility for others, and programme theory 6, waited long enough for things to improve. Finally, the ambulance model suffered from overfitting.

Implications

There was considerable support for four of the programme theories related to symptoms, personal circumstances and service characteristics, and other factors such as sociodemographic and personal characteristics (male, BAME, low health literacy) and service-related characteristics (recursivity). This highlights that multiple interventions are likely to be necessary because factors operate at a symptom, patient and service level.

Chapter 7 Integration from three work packages

Introduction

Integration has been carried out throughout this sequential mixed-methods study. The realist review (WP1) informed the subgroups selected for the qualitative interview study (WP2) and the interpretation of the findings in WP2. Findings from WP1 and WP2 informed the content of the WP3 population survey. It is also important to bring together findings from all of the WPs to identify overall learning about drivers of demand for 'clinically unnecessary' use of emergency and urgent care.

Methods

We used an adapted triangulation protocol[143] to bring together the key findings from each component of the study and to identify the overarching conclusions and recommendations from the whole study. First, we identified drivers and other key findings from each study component. Then we presented findings that were related to the same driver/factor from each component on the same page and considered how the findings converged, complemented each other or disagreed, or where there was no finding from a component when we might have expected one.

We also took the opportunity to refine the programme theories developed in WP1 after considering the findings from WP2 and WP3.

Results

The integration grid is shown in *Appendix 10*, *Table 32*. After constructing the grid, we considered the types of drivers and decided to summarise the findings as symptom related, patient related and health service related.

The final programme theories with support from all three WPs are displayed in *Table 14*. Programme theory 10, frustration with poor access to a GP, has been included despite it not being supported strongly in the WP3 vignette analysis because it played such as powerful role in the WP2 interviews.

TABLE 14 Final programme theories based on all of the WPs

PT label	PT detail
1, Uncertainty about symptoms causing anxiety	When there is uncertainty about the meaning and seriousness of symptoms (M) because they do not fit with people's expectations or prior experience (e.g. they last longer, are more severe, are unfamiliar or do not respond to self-care in the expected timescale) (C/M), this increases anxiety about the perceived risk (M) and an immediate need to establish what is wrong and obtain reassurance (M). This concern prompts the use of the ambulance, ED and GP (O), where it is perceived that the most appropriate resources and expertise required to establish cause can be accessed quickly (C). The ED is used in the context of timely or satisfactory answers not having been received from primary care services (C)

continued

TABLE 14 Final programme theories based on all of the WPs (*continued*)

PT label	PT detail
4, Inability to get on with daily life	When people are prevented from undertaking their normal lives, roles or responsibilities (e.g. paid work, child care) (C), or anticipate that this may occur, this creates a need to get back to normal quickly (M), to get on with their lives and discharge their responsibilities. This prompts use of ambulance, ED or GP (O) because the service can resolve a problem quickly by being accessible and efficient (C)
7, Stressful lives/cannot cope	When people are already experiencing significant stresses due to physical or mental illness, stress or lack of access to resources (e.g. money, time) (C) they have less capacity to cope with the additional challenge of a new or changed health problem. Symptoms are, therefore, likely to trigger emotional distress, including feelings of loss of control and helplessness (M), leading them to use services with lower burden of access
9, Perceptions or prior experiences of services	When people have individual experience or knowledge, or cultural beliefs, about the differing quality or availability of primary and emergency services, or lack of awareness of the range of services available, they are likely to choose emergency care, particularly the ED (O), which they see as having the tests and expertise necessary (C)
10, Poor access to a GP	When people are unable to obtain an appointment with a primary care practitioner (C/M), this can further exacerbate feelings of anxiety and cause panic (M). Individuals can experience feelings of frustration (M), mistrust (M), and the perception of an uncaring service (M), feeling that they have no other choice (M) but to contact an emergency service (O)

PT, programme theory.

Chapter 8 Discussion

We have discussed findings at the end of each chapter. Here we provide discussion of key points across the whole study.

Summary

In the review we identified 10 drivers of 'clinically unnecessary' use of ambulances, EDs and general practice that were further expanded in the interview study and tested in the survey. Multiple, interacting drivers operated in individuals' decision-making, which could be grouped into symptom-related drivers, patient-related drivers and health service-related drivers. Symptom-related drivers included anxiety or the need for reassurance caused by uncertainty about the seriousness of symptoms, concern about the impact of symptoms on daily activities and a need for immediate relief of intolerable symptoms, particularly pain. Patient-related drivers included reduced coping capacity due to illness, stress or limited resources; fear of consequences when responsible for another person's health, particularly children; and the influence of social networks. Health service-related drivers included perceptions, prior experiences and awareness of different services, lack of timely access to a GP appointment, and compliance with health service staff's advice to attend an ED. We do not know if these drivers differed between 'clinically unnecessary' users and those who attended services and were classed as 'clinically unnecessary'.

Strengths and limitations

The study had five strengths. First, we undertook a more in-depth piece of research than much of the previous work in the area, including an in-depth synthesis of previous research, an in-depth analysis of qualitative research and quantitative testing of a wide range of potential drivers. Second, we focused on a range of services facing considerable demand in England currently: emergency ambulances, EDs and urgent daytime general practice. The inclusion of emergency ambulances and general practice enabled us to explore drivers that had previously been generated largely from the experience of ED users. Third, we focused fully on patient and population perceptions to understand the issues from their perspectives. Fourth, the sequential approach allowed each WP to inform the next. In our review we found that many studies did not always provide enough detail to give an insight into the interaction of different issues in individuals' lives, or where particular service use was located in their overall help-seeking journey. Using the principles of IPA for the analysis of the interview data provided depth in describing user behaviour, demonstrating the complexity of decision-making. Fifth, the focus on 'clinically unnecessary' users' views of interventions to address their behaviour is a new addition to the evidence base.

There were three limitations. First, the study did not add as much to the evidence base about use of ambulance services as planned. There were few relevant articles included in the review and we struggled to recruit these users to our qualitative component. Booker's[19] review, encompassing patient and health professional perspectives, still offers the most in-depth understanding of 'clinically unnecessary' use of ambulance services. However, our testing of factors affecting the tendency to use emergency ambulances is an excellent contribution to the ambulance service evidence base. Second, we recruited fewer patients to our qualitative component from one of the two geographical areas in our study and so were unable to undertake our planned comparison between two, operationally different, emergency and urgent care systems. Third, it was challenging to measure some of our programme theories in our survey.

What DEUCE adds to the evidence base

In summary:

- We synthesised the existing evidence and produced a comprehensive set of programme theories that identify the factors at play when patients make use of services providing emergency and urgent care that is judged to be 'clinically unnecessary'. We have tested these programme theories using qualitative and quantitative methodologies and established a refined set of programme theories built on this evidence. Some of these programme theories were new, such as the way in which delaying seeking care using self-care adds to the urgency of help-seeking.
- The evidence used in the realist review was largely non-UK based and largely focused on EDs. We have added UK specific evidence and considered a wider part of the emergency care system by focusing on ambulance and GP use as well as ED use.
- Our qualitative interview study has added to the existing evidence base by focusing on two subgroups of users in whom there is little qualitative research (young adults and people from socially deprived communities) or little qualitative research undertaken in the UK (parents of young children). We found that a number of factors often occur during an individual help-seeking episode and together interact to determine whether or not a service will be used and, if so, which service.
- We highlighted the extent to which social circumstances related to complex lives, stress, lack of resources and mental health affect help-seeking behaviour. This was a programme theory from the realist review, was shown to be a driver during our interviews with young adults and people living in socially deprived communities, and was identified as a consistent factor explaining a tendency to make 'clinically unnecessary' use of ambulances, EDs and general practice in our survey vignettes.
- The existing evidence base on interventions to address demand for EDs is largely inconclusive. In our qualitative research we identified a range of potential interventions. An important intervention for patients was improving access to GPs and the GP appointment systems that determine access. However, patients' views on improving the quality and location of alternative services such as WICs and prescriptions/pharmacy highlight the variation in recommendations among the three subgroups and the importance of tailoring interventions to specific subgroups.

Implications

Changing patient behaviour

A 2013 policy document[144] set out a vision for supporting the population to facilitate self-care. Six years on, our study shows that, although people are active in undertaking self-care when faced with an urgent problem, many reach a point at which they perceive that care is needed from a higher-acuity health service than necessary. Understanding how people arrive at a decision to seek care, and why they choose a particular service from which to seek it, is an important consideration for the NHS as it plans the configuration of services to meet the needs of the population.

Our study found that patients' social circumstances play a key role in shaping decision-making. Some of the population may be affected by a complex set of social circumstances that combine, or work in isolation, to have an impact on their coping abilities and decision-making. This may be particularly challenging when a person is experiencing an acute episode of illness. Reducing this complexity is challenging, but it is clear that this complexity is a strong driver of 'clinically unnecessary' use of GPs, EDs and the ambulance service.

There are likely to be groups of people who are habitually labelled as seeking 'clinically unnecessary' use of emergency and urgent care, for example people who have difficulty coping (see programme theory 7). It is also highly likely that any individual may be labelled as making 'clinically unnecessary' use of emergency and urgent care at some point in their life because, for example, a specific symptom or circumstance causes high levels of anxiety. Interventions will need to consider both of these scenarios.

Interventions need to focus on services, not just patient behaviour

Some patients try to take a route through the system of care that is commensurate with their clinical need by contacting their GP before attending an ED. However, it appears that GPs and other services (such as NHS 111) advise some patients to go a higher-acuity service. Our study focused on patient decision-making, rather than attempting to understand the decision-making process from a health-care professional perspective. Interventions will be needed to focus on this contribution to demand.

Emergency and urgent care services are under sustained pressure in terms of supply of workforce as well as demand from patients. Increasing workforces may reduce concerns about demand for services. A key consideration here is general practice. Some patients in our study used same-day GP appointments because of ease of access, the location and a perception that the general practice was the best place to seek care. However, others used EDs after they had attempted to use their general practice but found themselves frustrated by the system of either obtaining a same-day appointment or having to wait > 7 days for a routine appointment. Strengthening general practice by improving access to appointments with a GP might, therefore, alleviate some of the 'clinically unnecessary' demand on EDs. Recent evidence of the falling number of GPs relative to the size of the population, and a disproportionate workload faced by GPs in deprived areas,[145] may have ongoing implications for patient access to general practice appointments and the use of higher-acuity services than necessary.

Some people felt that urgent care alternatives introduced to improve patient choice and access to care, such as WICs, MIUs and NHS 111, were not acceptable. Uncertainty about service provision, dissatisfaction based on previous experiences and a perception that the service was inferior (when compared with higher-acuity services) contributed to a reluctance to use these services. Improvements in these services could change patient behaviour.

Strengthening primary care and improving urgent care alternatives could have some impact on the demand for EDs, but it is unlikely to alleviate all 'clinically unnecessary' demand because some patients feel strongly that they need the facilities offered by ED, particularly X-rays. Service reconfiguration may, therefore, be required to offer X-rays in other services or it may be necessary to educate the population about when these facilities are unlikely to be necessary (e.g. for a rib injury).

Our interview participants were identified by service providers as making 'clinically unnecessary' contact with a particular service. However, interviewees did not describe this view being shared during the clinician–patient encounter. Health services themselves may reinforce 'clinically unnecessary' use by offering tests or reassuring patients that 'they have done the right thing' by making contact with them. If the clinician thinks that a patient could have used a lower-acuity service, then communicating this to the patient may help them to make better decisions in the future and avoid validating service use that may perpetuate further 'clinically unnecessary' use by both the individual and those in their social network. We understand the challenges of doing this in terms of the time it might take for busy clinicians, but it could be explored as a potential intervention to reduce 'clinically unnecessary' use.

Priorities for research

We identified a number of opportunities for further research:

1. Patients who had been labelled as making 'clinically unnecessary' use of services identified a number of interventions that had the potential to change the behaviour of patients seeking care for an urgent health problem. New interventions addressing 'clinically unnecessary' use of emergency ambulances and EDs should be evaluated. These include interventions that strengthen capacity in primary care, change GP appointment systems, reduce practices in EDs that encourage further 'clinically unnecessary' use, improve health literacy, improve population mental health and increase low resources in the population.

2. Evaluate new interventions to address 'clinically unnecessary' use of general practice, including educating the population about pharmacies, improving access to free prescriptions in pharmacies and improving patients' confidence in self-managing minor illnesses.
3. Evaluate new interventions tailored to different population subgroups, such as education and support aimed at parents of young children.
4. Understand drivers of 'clinically unnecessary' use for other subgroups identified in the survey, in particular men and BAME groups.
5. Some service users described that they had been signposted to higher-acuity services by general practice or by urgent care services such as NHS 111. Service users were not in a position to offer a view on why this occurred. Seeking health-care professionals' perspectives on this would be helpful in understanding how this driver could be best addressed.

Conclusions

'Clinically unnecessary' use of emergency and urgent care is of interest when supply fails to match demand. Patients use emergency ambulances, EDs and same-day GP appointments when they do not need the level of clinical care provided by those services for a multitude of inter-related reasons that sometimes differ by population subgroup. Some of these reasons relate to health services in terms of difficulty accessing general practice leading to use of EDs, and population-learnt behaviour concerning the positive attributes of EDs, rather than to patient characteristics. Social circumstances, such as complex and stressful lives, limited resources, the need to attend to responsibilities such as family and work, and parental anxiety, influence help-seeking behaviour in relation to all three services. Demand may be 'clinically unnecessary' but completely understandable when general practice accessibility and patients' social circumstances are considered.

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Contributions of authors

Alicia O'Cathain (https://orcid.org/0000-0003-4033-506X) (Professor of Health Services Research) was the principal investigator with oversight of all aspects of the study. She designed the study, contributed to all WPs and led WP1 and WP3. She wrote the first draft of *Chapters 1–3* and *Chapters 6* and *7*.

Emma Knowles (https://orcid.org/0000-0003-3372-1245) (Senior Research Fellow) was the study manager. A co-applicant, she contributed to the initial design of the study, led WP2, supported the development of the survey instrument in WP3, led the PPI workshop, and wrote the first draft of *Chapters 4* and *8*.

Jaqui Long (https://orcid.org/0000-0002-6889-6195) (Research Associate) tested and refined the programme theories in WP1, contributed to data collection and analysis in WP2, wrote the first draft of *Chapter 5* and contributed significantly to the writing of other chapters.

Janice Connell (https://orcid.org/0000-0003-4609-3911) (Research Associate) led the data extraction and development of the programme theories in WP1, and contributed to writing *Chapter 3*.

Lindsey Bishop-Edwards (https://orcid.org/0000-0002-2136-5557) (Research Associate) contributed to the data collection in WP2 and early stages of analysis before commencing maternity leave in November 2018.

Rebecca Simpson (https://orcid.org/0000-0003-1677-5938) (Research Associate) undertook the analysis of WP3 data.

Joanne Coster (https://orcid.org/0000-0002-0599-4222) (Research Fellow) was a co-applicant, contributing to searches, selection and early analysis of articles included in WP1.

Linda Abouzeid (https://orcid.org/0000-0003-4215-7367) (PPI member) was a co-applicant, appraising findings throughout the study, especially the analysis of WP2. She contributed to the *Plain English summary*.

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Enid Hirst (https://orcid.org/0000-0003-2230-5123) (PPI member) designed the PPI workshop and contributed to interpretation of the findings.

Richard Jacques (https://orcid.org/0000-0001-6710-5403) (Lecturer) was a co-applicant, advising on the analysis of WP3.

Miranda Phillips (https://orcid.org/0000-0001-6318-2233) (Research Director) was a co-applicant, contributing to the design of the questionnaire in WP3 and leading the British Social Attitudes survey.

Joanne Turnbull (https://orcid.org/0000-0002-5006-4438) (Senior Research Fellow) was a co-applicant, advising on how our project complemented and learnt from an ongoing NIHR project in a related field.

Janette Turner (https://orcid.org/0000-0003-3884-7875) (Reader in Emergency and Urgent Care Research) was a co-applicant, advising on how our project findings related to the evidence base and current policy initiatives.

All authors attended project management meetings to discuss the findings of each WP, and commented on the draft report.

Approvals

Ethics approval was sought for the qualitative interview study (WP2) and approval obtained from London – Brent REC (reference 14/LO/1228). The population survey (WP3) was conducted by NatCen and it obtained ethics approval through its standard procedures.

Publications

NatCen published a report of its 2019 British Social Attitudes survey in July 2019. The findings from our module of the survey were published separately in August 2019 focusing on aspects of seeking emergency and urgent care that complement rather than repeat the findings reported here.

Curtice J, Clery E, Perry J, Phillips M, Rahim N. *Emergency Care: What do Attitudes Tell us About Demand for Services and how it Might be Reduced*? London: The National Centre for Social Research; 2019.

Articles

O'Cathain A, Connell J, Long J, Coster J. 'Clinically unnecessary' use of emergency and urgent care: a realist review of patients' decision making. *Health Expect* 2020;**23**:19–40.

O'Cathain A, Simpson R, Phillips M, Dickson J. Tendency to contact general practice instead of self care: population vignette study in Britain. *BJGP Open* 2020; in press.

Oral conference presentations

O'Cathain A, Connell J, Long J, Coster J. *Understanding why Patients Make Clinically Unnecessary Use of Emergency and Urgent Care Services*. HSRUK Conference 2018, 4–5 July 2018, Nottingham, UK.

Long J, Knowles EL, Bishop-Edwards, L, O'Cathain A. *Interventions to Improve Service Use and Self-care Decision-Making in Patients Making Clinically Unnecessary Use of Urgent and Emergency Care*. HSRUK Conference 2019, 2–3 July 2019, Manchester, UK.

O'Cathain A, Simpson R, Knowles EL, Phillips M. *The Propensity to Make Clinically Unnecessary Use of Emergency Departments: A Vignette Study*. HSRUK Conference 2019, 2–3 July 2019, Manchester, UK.

Data-sharing statement

Any queries or data requests should be submitted to the corresponding author for consideration. Access to available anonymised data may be granted following review. NatCen makes the data from the British Social Attitudes survey available using its own data-sharing processes.

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Appendix 1 Objectives specified in the proposal

The objectives specified in the proposal were to:

1. identify drivers of demand for urgent care from the range of emergency, urgent and routine health services available, in particular the drivers of the propensity to seek care from a higher-acuity service than is clinically necessary (evidence synthesis and qualitative interview study)
2. understand how different subgroups of the population make decisions about help-seeking to inform potential intervention strategies (evidence synthesis, qualitative interview study and general population survey)
3. measure the prevalence of public attitudes towards seeking urgent care, and how these vary in different circumstances and by different subgroups of the population (general population survey).

Appendix 2 Search strategies and terms used in reviews for realist review

Coster *et al.*[28] searched MEDLINE, EMBASE, The Cochrane Library, Web of Science™ (Clarivate Analytics, Philadelphia, PA, USA) and CINAHL (Cumulative Index to Nursing and Allied Health Literature) from 1995 to 2016. Keywords related to emergency and urgent care services, health service demand and factors relating to rising demand. The search terms included ambulance, ED, appropriate care, utilization and urgent care.

Kraaijvanger *et al.*[29] searched MEDLINE, EMBASE, The Cochrane Library, CINAHL and PubMed up to February 2015. Searches used a combination of the following terms: ED, self-referred, referral, walk-in, motives and reasons. Studies were included if participants were self-referred to the ED.

Booker *et al.*[17] searched MEDLINE, EMBASE, PsycINFO, Web of Science and CINAHL from 1980 to June 2014. Search terms related to 'primary care sensitive clinical conditions' and 'health care from ambulance services' were used. Readers are referred to the PROSPERO register for details, although specific search terms are not included in the register. The 'primary care-related' aspects of included papers required explicit reference to terms related to primary care or family medicine, or focused on some of a list of indicator presentations.

Turnbull *et al.*[39] searched policy and published research MEDLINE, EMBASE, Web of Science, CINAHL and PsycINFO from 1990 to 2017; their search only included articles up to 2016 at the time they shared their database with us in February 2017. The strategy combined terms relating to urgent care and non-urgent use of emergency care services and terms relating to patient experiences, for example patient help-seeking and decision-making.

Appendix 3 Relevance and context appraisal of included qualitative articles

TABLE 15 Relevance and context appraisal of included qualitative articles

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Agarwal *et al.*, 2012[72]	1	Title: 'Potentially avoidable ED attendance' Abstract: 'could have been managed in an alternative service' Methods: 'Suitable to be cared for in an alternative urgent care provider service including primary care'/'attending the ED with urgent care needs that could be managed in other urgent care environments locally'	ED, two-thirds arriving by ambulance	'Non-urgent' defined to include referral of relatively serious problems (e.g. chest pain, collapse) to a centre staffed by doctors, nurses and emergency practitioners	Yes	No	Yes
Ahl *et al.* 2006[65]	1	Methods: 'had used ambulance care within the past 3 months … selected in order to achieve a large variation in … emergency priorities and medical diagnosis' Background of 2012 paper: 'pre-hospital care situations that are not defined as traumatic or life threatening'	Ambulance	–	Yes	Poor	Poor

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Becker *et al.* 1993[44]	2	Methods: 'adults with physician-diagnosed and documented asthma', studying 'individuals' response to asthma'	Mixed emergency/ urgent care: service unclear, mostly ED	–	Poor	No	Yes
Berry *et al.* 2008[66]	1	Title: 'bring children to the ED for nonurgent conditions' Abstract: 'choosing the ED over their PCP for nonurgent paediatric care' Methods: child 'assigned a nurse triage level of 5 on a 1 to 5 scale (with 5 indicating "no resources likely to be utilized" or a non-urgent problem)'/brought child to ED 'during hours when physicians' offices are routinely open'	PED	–	Yes	Yes	Yes
Booker *et al.* 2014[73]	1	Title: 'call emergency ambulances for primary care problems' Abstract: 'called an ambulance for a primary care-appropriate health problem' Methods: 'likely to have been managed successfully in primary care'	Ambulance	–	Yes	No	Yes
Brousseau *et al.* 2011[45]	1	Abstract: 'presenting for non-urgent care at a children's hospital ED' Methods: 'triaged as nonurgent by the ED triage nurse'	PED	Some data relate to HCPs' perceptions	Yes	No	Yes

continued

TABLE 15 Relevance and context appraisal of included qualitative articles (*continued*)

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Calnan 1983[46]	1	Methods: 'minor condition … according to both the level of medical skill needed to treat the complaint and the facilities available to treat the condition' – minor cuts 'requiring cleaning and dressing only which could be carried out by a [nurse] alone' – and minor illnesses 'complaints of a non-traumatic nature which could have been treated by a GP'	ED	–	Yes	No	No
Capp *et al.* 2016[67]	2	Abstract: 'Frequent ED users' (4–18 visits in past year, if most visits not for mental health or substance abuse reasons)	ED	Sample participating in RCT 'to improve[e] primary care utilization'	Yes	Yes	Yes
Chin *et al.* 2006[47]	1	Title: 'Nonurgent use of a PED' Abstract: 'presenting to a PED for nonacute care' Methods: 'in the PED whose visits were of low acuity as defined as score of 5 on 5 point Emergency Severity Index'	PED	Some data relate to HCPs' perceptions	Poor	Poor	Yes
de Bont *et al.* 2015[48]	2	Methods: 'presenting to the GP OOH centre with a febrile child under the age of 12'	OOH – delivered by co-op	–	Yes	Yes	Yes
Durand *et al.* 2012[7]	1	Title: 'Nonurgent patients in ED' Methods: 'triaged as nonurgent upon their arrival to the ED by the triage nurse', nonurgent defined as 'problem could be taken care of by primary care physician'	ED	Some data relate to HCPs' perceptions	Yes	No	Yes
Fieldston *et al.* 2012[49]	2	Title: 'Nonurgent visits to the ED' Methods: exploring and describing 'reasons for nonurgent pediatric ED visits independent of a particular ED visit'	PED	Some data relate to HCPs' perceptions	Poor	Yes	Yes

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Goeman *et al.* 2004[94]	2	Title: 'ED reattendance for asthma' Methods: people with asthma not controlled by their current therapy who 'reattended emergency departments within 12 months'	ED	Part of a larger sample where others did not reattend	Yes	Poor	Yes
Goepp *et al.* 2004[85]	2	Results: families from 'among residents of the East Baltimore neighbour-hoods' (area with high poverty levels) Conclusions: 'low-income patients, especially those belonging to minority groups'	Health service use, particularly PED	Some data ethnographic observations and community support workers' perceptions and experiences	Yes	Poor	Poor
Guttman *et al.* 2003[50]	1	Title: 'Medically nonurgent ED visits' Methods: visit 'considered medically nonurgent' by ED triage staff'	Adult and PED	–	Yes	Poor	Yes
Mostajer Haqiqi *et al.* 2016[81]	1	Abstract: parents of child under 10 'seeking care for nontraumatic dental problems in the ED' of a paediatric hospital	PED	–	Yes	Yes	Yes
Hopton *et al.* 1996[51]	2	Abstract: adults (or calling on behalf of another adult) or parents 'who called their doctors out of hours'	OOH – delivered by general practice	–	Yes	Yes	Poor
Houston and Pickering 2000[52]	2	Methods: parents of child under 10; three categories sampled: 'Frequent users … used the service twice or more in the previous 6 months or four times or more in the previous year … One-off callers … one or more call in the past 6 months and none in the prior 3 years' 'Non-callers … not used the service in the previous 3 years'	OOH – delivered by general practice	–	Yes	Yes	Yes

continued

TABLE 15 Relevance and context appraisal of included qualitative articles (*continued*)

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Howard *et al.* 2005[91]	1	Title: 'choosing the ED for non-urgent medical care' Methods: 'seeking treatment in the emergency department for care of a nonurgent complaint and who could articulate the reasons for choosing this source of care as opposed to their PCP'	ED	–	Yes	Yes	Yes
Hugenholtz *et al.* 2009[53]	2	Title: 'seeking immediate primary care for their children' Abstract: 'ask for immediate medical attention for their children' Methods: 'had visited the cooperative with a sick child'. Most coded as U3 by triaging assistant 'urgent, assess within several hours for medical or emotional reasons' but, after examination, half needed no treatment or only advice about self-treatment	OOH – delivered by co-op	Second group purposively sampled – 'children had required immediate referral to hospital care' – to compare decision-making in two groups	Yes	Poor	Poor
Hunter *et al.* 2013[68]	2	Methods: 'patients with one or more of four LTCs' – chronic obstructive pulmonary disease, coronary heart disease, asthma and diabetes	Mixed emergency care: ED, WIC and OOH	–	Poor	Poor	Yes
Keizer Beache and Guell 2016[82]	1	Title: 'Nonurgent accident and emergency department use' Methods: 'patients who had been triaged as non-urgent by the AED nurse'	ED	–	Yes	Yes	Yes

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Koziol-McLain *et al.* 2000[77]	1	Title: 'Seeking care for nonurgent medical conditions in the ED' Methods: 'discharged from the ED; and … triaged as nonurgent upon their arrival in the ED … based on a triage category of greater than 2 (triage categories range from 1 (life threatening) to 4)'	ED	–	Yes	Poor	Poor
Lawson *et al.* 2014[92]	2	Methods: 'patients with documented histories of asthma who were presenting with … asthma, shortness of breath, cough, or chest pain'	ED	–	Yes	Poor	Yes
MacKichan *et al.* 2017[98]	1	Methods: 'Patients who had self-referred to the ED, who attended the ED during GP practice opening hours, who had no investigations while at the ED and/or were discharged with "advice/guidance only"'	ED	Some data ethnographic observations and staff experiences	Yes	Yes	Yes
McGuigan and Watson 2010[54]	1	Title: 'Nonurgent attendance at EDs' Methods: 'non-urgent attenders who had been recorded as "self-referral" by receptionists at … ED … for whom the ED was the first choice for care'	ED	–	Poor	No	No
Neill *et al.* 2016[83]	2	Abstract: 'parents of children under five years, from a range of socioeconomic groups' Methods: 'parents in communities with differing social, economic and ethnic profiles'	Health service use	–	Yes	Yes	Yes

continued

TABLE 15 Relevance and context appraisal of included qualitative articles (*continued*)

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Olsson and Hansagi 2001[69]	2	Title: 'Repeated use of the ED' Methods: 'frequent visitor' defined as 'a patient who has made four or more visits during the previous 12 months', focusing on 'patients who did not require particularly specialised medical care, which is why we used the patient database … for general surgery and internal medicine' (i.e. not gynaecology, ENT, paediatric, psychiatry, etc.)	ED	–	Yes	Poor	Yes
Shaw *et al.* 2013[55]	1	Title: 'patients who use the ED for primary care needs' Abstract: 'patients who were discharged from the low acuity area of a university hospital ED' Methods: 'patients who sought treatment in the ED and were triaged to the non-urgent area' based on the Emergency Severity Index – levels 4 and 5	ED	–	Yes	Poor	Yes
Stafford *et al.* 2014[56]	1	Abstract: 'inappropriate attendances at urgent care facilities' Methods: 'patients presenting to urgent care … diagnosed with simple mechanical back pain by their urgent care clinician' and meeting the inclusion criterion of 'requiring only advice and analgesia'	Mixed emergency/ urgent care: ED, WIC and OOH service	–	Poor	No	No

Authors and year of publication	Relevance code	Definition of sample/participants as described in the paper, and where description(s) can be found (title/abstract/methods)	Service	Comments	Adequacy of description of key aspects of context		
					Service	Geographical setting	Demographic details
Wilkin *et al.* 2012[84]	2	Methods: members of a local community with 'the second highest rates of calls to 911' according to hospital data. Some of the participants 'were identified as 911 users in a previous research project'	ED	–	No	Yes	Yes
Woolfenden *et al.* 2000[57]	1	Title: 'use of a paediatric ED as an ambulatory care service' Methods: 'parents of children who presented with non-urgent illnesses to a tertiary PED'	PED	–	Yes	No	Poor

HCP, health-care professional; OOH, out-of-hours primary care provision; PC, primary care; PED, paediatric emergency department.

Notes

Shaded boxes indicate aspects of context that are not adequately described. Where two or more aspects are shaded, the author/title column is also shaded to indicate that the paper has significant weaknesses in its description of context factors.

Relevance coding. 1: directly relevant, all papers included – aim relates to non-clinically necessary use; sample identified as non-clinically necessary users of urgent/emergency service. 2: partially relevant, all papers included – aim relates to non-clinically necessary use; sample identified as a group who tend to use urgent/emergency services when not clinically necessary (frequent users, people with long-term conditions, parents of young children, people with low social status), but not specifically non-urgent use in this instance.

Appendix 4 Methodological rigour of included qualitative articles: Critical Appraisal Skills Programme items

TABLE 16 Methodological rigour of included qualitative articles: Critical Appraisal Skills Programme items

	Quality appraisal									
Authors and year of publication	1: Clear aim?	2: Qualitative method appropriate?	3: Design appropriate to aims?	4: Recruitment strategy appropriate to aims?	5: Data collection addressed research issue?	6: Researcher/ participant relationship considered?	7: Ethics issues considered?	8: Analysis sufficiently rigorous?	9: Clear findings?	10: Research valuable? (New insights? Links to existing literature? Links to policy/ practice? Further research? Transferability of findings?)
Agarwal *et al.* 2012[72]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
[a]Ahl *et al.* 2006[65]	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Yes
Becker *et al.* 1993[44]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Can't tell	Yes	Yes
Berry *et al.* 2008[66]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Booker *et al.* 2014[73]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brousseau *et al.* 2011[45]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes
Calnan 1983[46]	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Yes	Limited
Capp *et al.* 2016[67]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Limited	Limited
Chin *et al.* 2006[47]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Can't tell	Limited	Yes
de Bont *et al.* 2015[48]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Durand *et al.* 2012[7]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Fieldston *et al.* 2012[49]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Can't tell	Limited	Yes
[b]Goeman *et al.* 2004[94]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Limited	Yes
Goepp *et al.* 2004[85]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes

Authors and year of publication	Quality appraisal									
	1: Clear aim?	2: Qualitative method appropriate?	3: Design appropriate to aims?	4: Recruitment strategy appropriate to aims?	5: Data collection addressed research issue?	6: Researcher/ participant relationship considered?	7: Ethics issues considered?	8: Analysis sufficiently rigorous?	9: Clear findings?	10: Research valuable? (New insights? Links to existing literature? Links to policy/ practice? Further research? Transferability of findings?)
Guttman *et al.* 2003[50]	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Yes	Yes
Mostajer Haqiqi *et al.* 2016[81]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Hopton *et al.* 1996[51]	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Yes
Houston and Pickering 2000[52]	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Can't tell	Yes	Yes
Howard *et al.* 2005[91]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Hugenholtz *et al.* 2009[53]	Yes	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Yes
Hunter *et al.* 2013[68]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Keizer Beache and Guell 2016[82]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Koziol-McLain *et al.* 2000[77]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes
Lawson *et al.* 2014[92]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Limited	Yes
MacKichan *et al.* 2017[98]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
McGuigan and Watson 2010[54]	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Can't tell	Limited	Limited
Neill *et al.* 2016[83]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes

continued

TABLE 16 Methodological rigour of included qualitative articles: Critical Appraisal Skills Programme items (*continued*)

	Quality appraisal									
Authors and year of publication	**1: Clear aim?**	**2: Qualitative method appropriate?**	**3: Design appropriate to aims?**	**4: Recruitment strategy appropriate to aims?**	**5: Data collection addressed research issue?**	**6: Researcher/ participant relationship considered?**	**7: Ethics issues considered?**	**8: Analysis sufficiently rigorous?**	**9: Clear findings?**	**10: Research valuable? (New insights? Links to existing literature? Links to policy/ practice? Further research? Transferability of findings?)**
Olsson and Hansagi 2001[69]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shaw *et al.* 2013[55]	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Stafford *et al.* 2014[56]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes	Yes	Yes	Yes
Wilkin *et al.* 2012[84]	Yes	Yes	Yes	Yes	Yes	Can't tell	Can't tell	Yes	Yes	Yes
Woolfenden *et al.* 2000[57]	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Can't tell	Can't tell	Limited	Limited

a Additional methodological information obtained from Ahl and Nyström.[146]
b Additional methodological information obtained from Goeman *et al.* 2002.[147]

Notes

Shading indicates areas identified as 'can't tell' or 'limited'. Where two or more of the key methodological areas (identified in light blue in the top row) are shaded, the author column is shaded in purple to indicate the paper has key areas of weakness.

Key

Yes, at least adequate information provided to have some confidence that research has been carried out appropriately; can't tell, insufficient information provided to be confident that research has been carried out appropriately/well in this area. Limited, reporting of findings limited in extent and/or depth.

Appendix 5 Data extraction for included qualitative articles

TABLE 17 Data extraction for included qualitative articles

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Agarwal *et al.* 2012, UK[72]	ED and urgent care centre; two-thirds arriving via ambulance	To explore the reasons for attendance at the ED by patients who could have been managed in an alternative service	Semistructured interviews; 23 adult patients and/or their carers	LTCs – mentioned briefly in findings	• *Anxiety*/concern regarding presenting problem – belief it needed to be dealt with quickly, and *familiarity* with ED services • *Unable to access general practice*: no appointments, out of hours, too long to wait, difficult to get to • *Perceptions of efficacy of the ED*: already being treated there, more thorough investigation • *Lack of alternative pathways* to deal with problem: other services unable to cope with problem, or had transferred them to ED	–

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
[a]Ahl *et al.* 2006, Sweden[65]	Ambulance, including pre-hospital care	To analyse and describe patients' experiences related to the decision to call an ambulance and when waiting for it to arrive: *The issue of inappropriate use of ambulance transport [. . .] To further understand whether or not patients use ambulance care in an inappropriate manner*	Exploratory interviews; 20 adult patients	No	*1. Making up one's mind:* major decision, others often involved – situation experienced as intolerable, must get immediate help; someone else points out urgency of need; realising that other options have been exhausted after trying to manage on their own; overcoming hesitancy; ambulance fastest, most safe and secure form of transport, enabling immediate access to care; emphasising the need for care, including to others *2. Waiting for help*: experiencing the wait as long; desire immediate help; alone with one's feelings – anxious, afraid, neglected, lonely; avoiding/ handing over responsibility – feeling of relief; sense of safety and trust	Morse and O'Brien: impact of sudden illness on ability to communicate – mentioned in discussion
Becker *et al.* 1993, USA[44]	Mixed emergency/ urgent care: range of services unclear, mostly ED	To study the significant variables related to individuals' response to asthma: *. . . an ethos (. . .) surrounds ED use by asthma patients . . . Eighty-five percent of all visits to EDs have been found to be for non-life-threatening reasons . . . staff may regard persons whose lives do not appear to be in danger as wasting their time*	Monthly semistructured interviews (×3) and symptom diary; 95 adult patients	LTC (asthma) – focus of the paper	• Confrontation with health care: *Two major themes related to control shaped individuals' experience of their asthma: self-reliance and self-mastery* • Unpredictability of the condition: affected efforts to control, created uncertainty; nervous, threatened or irritated; memory of previous severe/unexpected episodes shaped future responses	–

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					• Discovering the limits of control; learning to identify markers of danger; extending boundaries of control through medication use; trying to avoid use of health-care system • The decision to seek medical treatment; previous experiences of being criticised for attending too early or delaying use of services; identifying a point when help needed; juggling assessment of the condition with other responsibilities, desire for self-reliance, and fear of death; questioning knowledge of professionals and effectiveness of treatment *Dilemma of seeking urgent care:* • Narrow definitions in health care → balancing delaying too long with seeking help too soon, fear of judgement • Cultural assumption of personal responsibility for illness → stigma and blame for unpredictable episodes; but services fail to cure or manage illness effectively	

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Berry *et al.*, 2008, USA[66]	PED	To identify parents' reasons for choosing the ED over their PCP for non-urgent paediatric care	Semistructured ethnographic interviews; 31 families (37 parents) of children (age limit not specified)	Parents: focus of the paper	• *Problems with primary care provider:* long wait for appointment; frustration with negative attitudes of staff at PCP office; communication problems with staff about how to get appointments; unhelpful, confusing explanations, strong accents • *Referral by the PCP:* told to come to ED by staff or other services • *Advantages of the ED:* efficient, faster service; ED resources including tests and X-rays; convenience of walk-in aspect; quality of care and confidence in care – more thorough; PED expertise with children, more child-friendly • *Parent education:* most PCPs had not provided any information on signs to look for to know when to go to ED, urgent vs. non-urgent conditions	Andersen and Aday behavioural model of health-care utilisation: interview schedule based on this, but not explored in the discussion

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Booker *et al.* 2014, UK[73]	Ambulance	To explore and understand patient and carer decision-making around calling an ambulance for primary care-appropriate health problems	Semistructured interviews; 16 adult patients or carers of adults	No	*Main theme:* patient and carer anxiety in urgent care decision-making Subthemes: • *Perceptions of ambulance-based urgent care*: perceived as competent to deal with anything; looking to service for rapid assessment, decision-making and signposting • *Perceptions of community-based care:* cannot provide the help needed, especially by telephone; OOH service seen as limited • *Influences of previous urgent care experiences in decision making; interpersonal factors*: prior negative experiences with other services – wasting time, being referred on, unable to access GP, transport difficulties • *Patient and carer anxiety and decision-making*: need for urgent reassurance, sometimes as a result of health-care professionals' advice on telephone • *Interpersonal factors and the assessment of risk in decision-making:* others often involved, particularly carers – less likely to take risks, may drive person to do what carer thinks	–

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Brousseau *et al.* 2011, USA[45]	PED	To better understand parental decisions to seek care for their children and physician perceptions of parents' decisions to seek non-urgent ED care	In-depth interviews of 26 parents within 20 PCPs; children's age limit not specified	Parents: focus of the paper	• The need for immediate reassurance that their children are safe from harm is critical to parents' decisions: looking for answers that satisfied worry; telephone diagnosis not as reliable; ED seen as superior, some dissatisfied with PCP; reassurance more important than cost • PCP offices lack specific tests and treatments that parents and physicians believe may be necessary regardless of whether they are actually needed: ED seen as equipped to handle everything • Discrepancies exist between PCP and parent perceptions of adequate communication and access: parents did not think they were given education about appropriate ED use, although PCPs considered they did; parents did not feel they were seen as quickly as they wanted, although PCPs felt that they were accessible • Non-urgent ED visits are not perceived as a significant enough breach in continuity of care to warrant significant concern	–

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Calnan 1983, UK[46]	ED	A comparison of the processes involved in the decision to seek medical care for sufferers with different types of complaint: *Explanations of patient use of the hospital accident and emergency department have, until recently, been coloured by provider's conceptions of how the service ought to be used. Emphasis has been placed on examining why patients did not go to their GP*	Semistructured interviews; 575 adult patients	No	• *Illness behaviour of patients with 'minor' cuts:* decision made quickly, usually straightforward – visible problem, sometimes familiar, known cause, mostly accidental; influenced by depth of cut, blood loss, part of body, child involved, need for particular treatment (e.g. tetanus, stitching); influence of others (e.g. authority figures, social network), sense of responsibility for individual; balancing family commitments with personal needs; decision to use ED not PCP more likely to be made if outside home or made by others; lack of GP availability and facilities to treat • *Illness behaviour of patients with minor illness:* more complex decision – often did not know what was wrong as a result of unfamiliar/unexplained/ persistent symptoms; health history sometimes gave insight; more likely to have tried to contact GP than those with cuts, but often referred to ED by PCP staff, could not wait for appointment, not satisfied with treatment or had no access to GP; other people excluding close family less influential in decision-making	Bloor, drawing on Schutz's work (not referenced in Calnan's paper) re 'systems of relevance and the attribution of meaning' – differences in cognitive process between novel and routine decision-making: explored in discussion

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Capp *et al.* 2016, USA[67]	ED	To clarify from the patient's perspective why adult Medicaid enrollees who want to receive care co-ordination services to improve primary care utilisation frequently use the ED	Secondary analysis of one- to two-page interview summaries from RCT; 100 adult patients	Deprivation: adults with active Medicaid insurance – focus of the paper	• Negative personal experiences with the health-care system, especially PCP: lack of continuity, not listened to, treated differently because had state insurance – negative comments, made to feel a nuisance • Challenges associated with having low socioeconomic status: managing complex living situation a priority over health concerns; hard to remember appointments; transportation a barrier to PCP; some lived close to ED or called an ambulance • Significant mental and physical chronic disease burden: most had chronic illness; no preventative care, responded when problem or exacerbation arose, and then unable to access PCP quickly enough; past and recent traumatic life events leading to anxiety/depression	–

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Chin *et al.* 2006, USA[47]	PED	To understand patterns of decision making among families presenting to a PED for non-acute care and to understand PED staff responses	In-depth semistructured interviews; 12 family caregivers of child (age limit not specified) (and 19 ED and paediatric ED staff members)	Parents/caregivers: focus of the paper. Also deprivation – from PCPs in medically underserved areas (inner city and rural): unintentional but noted as finding	• Patients were referred to the PED for non-urgent care by PCP office: not their choice, mostly puzzled and unhappy • Outlier case: one person opportunistically capturing an episodic acute event; anxiety heightened by own health experience • *Complexities of poverty and competing priorities:* managing multiple responsibilities with few resources – ED referral added to problem; own needs did not match system priorities; primary care system complex and inflexible, easier to use ED • *Mistrust:* seen in previous study in relation to PCP, but not major theme here; some reservations about lack of understanding of black/white differences in beliefs about child nutrition; lack of sensitivity to other issues	–

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de Bont *et al.* 2015, the Netherlands[48]	OOH – delivered by co-op	To explore experiences of parents when having visited GP OOH services with their febrile child	Semistructured interviews; 20 parents of child under 12 years old	Parents: focus of the paper	• *Cautiously seeking care:* additional symptoms or problems prompt contact; initially wait then definite decision to seek care; GP had no time, problem OOH greater worry at night when unable to monitor easily • *Discrepancy between rationality and emotion:* anxiety increases with temperature – seen as indictor of illness severity; emotions take over; duration of symptoms important; parents of older children less anxious • *Expecting reassurance from a professional:* that they were caring correctly; wanting to know cause, nothing serious; physical examination important and GP expertise, not expecting medication; different doctor provides second opinion, used to seeing different people • *A need for consistent, reliable information:* consulting others including internet before seeking help but not being reassured; would value written information from GP for managing on another occasion, but needs to be from reliable source	–

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Durand *et al.* 2012, France[7]	ED	To explore the reasons why people with non-urgent complaints choose to come to EDs, and how ED health-care professionals perceive the phenomenon of 'non-urgency'	Semistructured interviews; 87 adult patients (and 34 ED staff) across 10 EDs	No	• *To fulfil health care needs:* alleviate pain or discomfort and anxiety generated by the complaint; pain an emergency; needing reassurance • *Barriers to primary care providers:* difficulty obtaining appointment; only alternative to accommodate work schedules; discerning health consumers – knew the system, assessed alternatives and made choice • *Advantages of the ED:* availability of diagnostic tests and treatment; convenience; being cared for in a single place; availability of medication	–
Fieldston *et al.* 2012, USA[49]	PED	To elicit and to describe guardians' and health-care professionals' opinions of reasons for non-urgent PED visits	Focus groups: three groups of guardians of child under 5 years old ($n = 25$) – most had taken a child to ED, but no indication of appropriateness of visit [and three groups of paediatric health professionals ($n = 42$)]	Parents and deprivation: target group – sample recruited from services for families at risk/on low incomes	• *Perceived medical need:* need timely reassurance about concerns, especially if worried about symptoms, particularly for newborns and first-born children; anxiety increased by awareness of negative outcomes for other children; better treatment, faster, more tests and interventions, second opinion – willing to wait • *System design, accessibility, availability:* aware of PCP systems but preferred convenience of ED, own schedules did not fit with PCP system, could not miss work; OOH PCP telephone access helpful	–

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[b]Goeman *et al.* 2004, Australia[94]	ED	To explore the reasons why individuals recurrently present with asthma to hospital EDs: *Episodes of severe asthma should be mostly preventable with current best treatment, yet asthma remains one of the most common reasons why patients seek emergency care . . . A number of ideas have been proposed as to why some individuals recurrently seek emergency care for asthma*	In-depth semistructured interviews; 32 adult patients	LTC: asthma not controlled by current therapy – focus of the paper	• *Reasons for ED attendance:* respiratory tract infection, shortness of breath, concerns regarding medication use, cost of medication use, run down/weather, desensitisation • Most had chronic severe asthma and only a few of these attendances were considered preventable with reduced medication cost or increased knowledge of asthma management • Among those with less severe asthma, some attendances were a result of low knowledge, poor medication use, lack of access to specialist care, lack of medication review, medication cost • Quantitative information indicates that reattendees had more severe chronic asthma, more admissions and more asthma attacks than non-reattendees in the comparison group	–

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Goepp *et al.* 2004, USA[85]	Service use decisions, particularly PED	*Low acuity use of EDs is often viewed as misuse or abuse. We designed a program to help users access services more efficiently*	Participatory action model and ethnographic study: observation, interviews, groups; 90 families (interviews and focus groups with workers)	Deprivation and parents: families on low income, minority groups	Initially designed a programme using lay community workers to educate families about the health-care system and measure change in use of PCP and PED Negative reaction from participants and recognition of their needs led to change to qualitative methods to understand factors driving people's health-seeking behaviour in order to educate health-care professionals. Findings of ethnographic evaluation: • *Fear and suspicion of health-care providers and system* – experiences of discrimination and humiliation; hospitals dangerous, may perform secret medical experiments • *Differing definitions of health* – standard biomedical measures, for example immunisation did not match families' perceived need where housing, food, employment and safety were priorities; ED preferred because of timing and access issues, shorter waiting times – decision about service not made in relation to acuity of illness	–

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					• *Systems complexity* – demands of living with poverty a barrier to efficient use of health care, appointments missed owing to other priorities; ED offered easy access any time, no need to make appointment or be blamed for missing them; size of hospitals and clinics intimidating, feel lost and unwelcome • *Value of liaisons* – support workers helped break down barriers of trust and complexity, support to navigate systems	
Guttman *et al.* 2003, USA[50]	ED and PED	To identify reasons for medically non-urgent ED visits from the users' perspective and to identify through their reasons what may have prompted them to use the ED for medical care they could have ostensibly received in primary care sites	Structured interview protocol with open-ended questions and scaled items regarding decision; 331 parents/guardians of child up to 18 years old and 77 adult patients	Parents: majority of the data relate to this group, although 11 out of 12 themes were found in both groups	*1. Conceptions of needs:* • *Relief from pain or discomfort* – especially when a child, pain can be seen as an emergency • *Reassurance* – that condition is not dangerous or at risk of deterioration, not at fault, especially for children • *Official approval* – to undertake particular activities (e.g. holiday) • *Caretaker responsibility* – do not take chances with child, even when situation does not seem an emergency; seek help when symptoms persist, especially at weekends; parents also seek help for self so that they can care for their child	–

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					• *Recourse, second opinion and referral* – especially when not satisfied with PCP consultation, treatment, advice; wanting referral to specialist • *Financial* – lack of insurance; no regular doctor, recently moved, out of town, nowhere else to go *2. Conceptions of appropriateness:* • *Worrisome condition* – anything causing concern is appropriate, especially for children • *After-hours office services* – ED appropriate when PCP unavailable; accommodates work schedules • *Perceived unavailability of timely appointments in primary care settings* – scheduling difficulties, long waits, cannot tolerate delay; no appointment needed for ED; especially for public clinic users *3. Preference:* • *General preference* – ED close, familiar, trusted, used as primary care site	

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					• *Facilities and staff* – tests, medications; one-stop health care; better doctors; treated with more respect; some cultural and educational variation around these factors • *Shorter wait* – compared with PCP Develop a typology that maps congruence between conceptualisation of emergency and user's own reason against user's preference for ED to identify four types of user: 'no alternative'/'prefer the ED'/'would rather go elsewhere'/ 'ED is the best option for an emergency'	
Mostajer Haqiqi *et al.* 2016, Canada[81]	PED	To explore the reasons that lead parents to select the ED over a dental clinic for their child's non-traumatic dental problem	Semistructured interviews; 15 parents of a child under 10 years old	Parents: focus of the paper	*1. Family-related barriers:* • *Parents' understanding of oral health* (wait and see attitude, lay diagnosis) • *Parents' socioeconomic challenges* – balancing care for child with other demands including irregular/long hours, dental problems not priority 2. *Provider-related barriers:* • *Poor access to dental care* – limited for children; dentist referred families to the hospital owing to complex/multiple	Grembowski: dental care process model: used as conceptual framework for study

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					problems or child's behaviour (crying, fear), hospital the last resort; dentist unavailability – closed, long wait • *Poor quality of dental care* – perceived lack of patience with children, lack of competency *3. Satisfaction with care provided at the hospital* – will not consult private dentists again	
Hopton *et al.* 1996, UK[51]	OOH: delivered by general practice	To investigate patients' accounts of calling the doctor OOH: *Alongside the debate about factors influencing demand for out of hours care is debate about the appropriateness of the demand. [. . .] Despite this evidence and calls for patient education as a means of tackling increasing demand and inappropriate use, patients' perspectives on out of hours calls have been neglected*	Semistructured interviews; 23 adult patients or calling on behalf of an adult and 23 parents of child under 16 years old	Deprivation: product of geographical area where research was carried out – area of high deprivation	• *Symptoms:* ideas about normal and abnormal illness, including severity, unrelieved, unexplained, combination, sudden onset, long duration, high temperature in child, behaviour • *Context of call:* concerns about specific illness; caller's feelings – panic, distress; responsibility for others – especially children; previous attempts to manage the problem, including self-care, lay and professional advice, wait and see then taking action; failing to get an appointment; lack of medication in house • *Previous experiences of health services and health professionals:* past frights when things more	–

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					serious than expected; current concerns about other illness; lack of confidence in health professionals, feeling not taken seriously; previous medical successes prompt quicker action now • *Outcome of calls:* mostly prescription, referred to hospital; result affected view of future actions – most would do the same again	
Houston and Pickering 2000, UK[52]	OOH: delivered by general practice	To investigate how parents use the GP OOH service: *The apparent increase in out-of-hours GP consultations is a source of considerable concern and debate. The underlying premise of much of this concern is that many of these calls are unnecessary*	In-depth semistructured interviews; 29 families of child under 10 years old	Parents: focus of the paper	• *Belief in self-management:* desire to cope and take responsibility for child • *Strategies for managing childhood illness:* range of approaches, including temperature, medication • *Responsibility and fear of making the wrong decisions:* wanting to do the right thing, feeling ill-equipped to manage, especially as new parent • *A real dilemma:* whether or not to call doctor, aware of demands on service, but want to do right thing for child • *Calling the doctor:* call triggered by combination of emotional response and particular situation; linked to previous experiences of persistent calls leading to eventual help; loss of confidence in own strategies	Antonovsky: work regarding coping mechanisms and Sense of Coherence: explored in results and discussion

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					• *Social support*: affected whether or not needed to call doctor (e.g. if no family near, single parent, social isolation at night) • *Previous health-care experiences:* those with more frequent prior contact more likely to call, more willing to hand over responsibility, disempowered by past experience especially if serious – less able to manage minor illness • *Differences between callers and non-callers:* non-callers emphasised managing and being seen to manage more; callers believed entitled to use service, best thing for their child	
Howard *et al.* 2005, USA[91]	ED	Why do people choose to come to the ED instead of their PCP with nonurgent medical complaints?	Interviews using open-ended interview tool modified from survey questionnaire; 31 adult patients (aged 18–50 years)	No	• *People used the ED because they have been told to do so by staff in their PCP's office:* positive regarding PCP but long wait for appointments; told to seek help at ED by office staff rather than health-care professionals • *People have difficulty gaining an appointment with a PCP in a timely manner:* perception or experience of being unable to get experience on the day	–

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					they called; PCP not in or not open, leave messages and long wait for reply • *Time played a factor in every response given by the participants:* hard to get appointment; long wait in office then only seen for very short time; having to schedule work around appointment; needing to see doctor on the day if off sick so can get back to work quickly; child care an issue; cannot sit in doctors for ages with kids	
Hugenholtz *et al.* 2009, the Netherlands[53]	OOH: delivered by co-op	To gain insight into the health-seeking behaviour of parents who ask for immediate medical attention for their children: *Data from GP co-operatives … show that children make more use of OOH care than members of other age groups, although the health problems … are less urgent from a medical point of view*	Semistructured interviews; 27 parents of child up to 16 years old – 19 with minor illness; eight requiring immediate referral to hospital	Parents: focus of the paper	• *Knowledge of parents and their actions at home:* used existing knowledge of child's behaviour and appearance to determine they were sick – deviation from norm was first sign something wrong; used diagnostic procedures before contacting for help – fever a particular concern/trigger • *The turning point:* most had thought of medical diagnosis before calling; sought help when felt incapable to handle situation – symptoms worsening/alarming/ inexplicable, child's discomfort, own approach failed; intuition important; seeking contact became the only way to get relief from worry	Beck; Giddens – Risk Society: explored in discussion

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TABLE 17 Data extraction for included qualitative articles (*continued*)

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					• *Not wanting to take a risk:* did not trust situation, own feelings a trigger to seek help; worry about leaving things too long in case something serious, do not take a risk, go too often rather than not enough; seeking examination and reassurance rather than treatment, want to know what's wrong, rule out serious illness; risk avoidance part of parental role – child important, have to watch closely, responsible for getting help on time, stand up for their children	
Hunter *et al.* 2013, UK[68]	Mixed emergency care: ED, OOH and WIC	To elaborate on the processes by which patients with long-term conditions choose between available options for care in response to a health crisis, to inform the development of future policy and guidance on modifying emergency care use: *. . . health policy in many countries seeks to constrain and shape patients' care decisions in order to ensure that the service accessed reflects the level of medical need*	Semistructured interviews; 50 adult patients	LTC (asthma/chronic obstructive pulmonary disease/coronary heart disease/ diabetes): focus of the paper	1. *Patients framed instances of emergency care as unavoidable:* reluctant to use, do not want to be a burden, no other option because of seriousness of problem 2. *Previous experiences shape future emergency care use:* • *Negotiating and establishing urgency* – base future decisions on previous experiences and responses of social network and health-care professionals, decision sanctioned or made by someone else • *Prioritising technological expertise over established relationships in times of crisis* –	Dixon-Woods: candidacy Rogers, Hassell and Nicolaas: recursivity–discussion framed around these concepts (Rogers *et al.* consider how people's experience of service use influences future help-seeking, but do not actually conceptualise it as 'recursivity', and this word is not in the book's index)

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					emergency care services have facilities not available in primary care; disease-specific care also better in specialist clinics; WIC/OOH provision do not provide benefits of ED or of GP, so not preferred • *Judging accessibility of services* – range of barriers to unscheduled access to primary care, mostly organisational – appointment systems, transport/travel, long waits	
Keizer Beache and Guell 2016, St Vincent and the Grenadines[82]	ED	To explore attitudes of non-urgent accident and emergency department patients in a middle income health-care setting and to understand how and why they decide to seek emergency care and resist using primary care facilities	Semistructured interviews; 12 adult patients	No	• *Habitual use of the ED:* a default process rather than a deliberate decision, seen as general societal behaviour; encouraged by family, friends, colleagues • *Systemic encouragement of the use of the ED:* limited scheduling and hours of primary care clinics reinforced used of ED, also lack of diagnostic facilities; referred to ED by clinic staff • *Deliberate use of the ED:* some making active choice to use; transport, convenience; seriousness of complaint; positive previous experience – quality of care, time available	Andersen model of health service use: informed interview guide and mentioned in discussion Nilsen *et al.:* role of habit in decision-making; Zimmerman multilevel theory of population health: role of habit, custom and power in decision-making – explored in discussion

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TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Koziol-McLain *et al.* 2000, USA[77]	ED	To gain an understanding of the context in which patients choose to seek health care in an ED: *The policy goal of shifting nonurgent visits from the ED to nonemergency health care settings is commonly devised, planned and implemented without considering patients' perspectives*	Unstructured interviews; 30 adults	Uninsured patients: can we assume deprivation?	*Toughing it out:* putting up with things before going to ED *Symptoms overwhelming self-care measures:* mostly use of over-the-counter medicines; decision made when problem began to have an impact on function *Calling a friend:* seeking support and advice from friends and relatives, especially mothers *Nowhere else to go:* could not access non-emergency care; being referred to ED by other health-care providers *Convenience:* work schedules, child care and transportation barriers affecting choice of ED	Malone: ED's hidden role as almshouse (giving social care) impacted by changing service context (higher volume and acuity in ED, medicalisation of problems, less community support services) → frequent users seen as problem rather than system – paper framed around this Cassel; Sacks: impact of illness on whole self, contrasted with medical approach of treating a symptom

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Lawson *et al.* 2014, USA[92]	ED	To explore the reasons for asthma-related ED use among adults: *ED visits for asthma have long been considered 'avoidable' yet exacerbations remain common . . . it has never been more important for health systems to find new ways to reduce the number of ED visits and hospitalisations for asthma*	Semistructured interviews; 26 adults	LTC (asthma)	*1. Reasons for ED utilisation*: • ED as a fast or convenient site of care – cannot wait for clinic appointment • *ED resources or expertise* – know what to do, treat the condition frequently • Inability to access outpatient provider – symptoms worse at night • *Inability to access medication* – not picking up medication because of work • *Lack of symptom improvement* – tried medication but not helping • *Severity of symptoms* – know that it is bad enough to need ED • Referred by outpatient provider • Told to go to ED by friend or family member • *Insurance status* – ED will see if have no insurance *2. Definitions of flare severity*: symptoms grouped into mild (can manage) or severe (cannot manage themselves); lack of recognition of middle ground where should try to escalate medication and seek outpatient help	–

continued

TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
MacKichan *et al.*, 2017, UK[98]	ED	To describe how processes of primary care access influence decisions to seek help at the ED: *Given that a significant proportion of ED attendances . . . are discharged with 'advice only' . . . and that ED attendances peak during the working day on Monday, it is presumed that better access to primary care will relieve pressure on EDs*	Ethnographic study of six GP practices: observation of reception areas, document analysis, interviews; 20 patients and nine parent/carers (19 clinical and non-clinical staff)	Parents: brief reference in results to particular experiences	• *Intricate appointment systems:* difficult to understand, different in each practice, frequently changing; receptionists seen as gatekeepers • *Appointment availability:* increased use of triage, telephone and same day appointments; less routine slots; confusing range of appointments • *Communication and talking on the telephone:* language and other barriers sometimes driving ED use • *Is it an emergency?* Differing understanding between staff and patients regarding definition of urgent, cultural issues can affect • *Out-of-hours care:* lack of knowledge and understanding regarding how to access; perceived/experienced as poor quality • *Perceptions about level of care accessible at GP practice:* ED seen as quicker way to access care; higher level of skill, more specialist and better quality of care; parents' risk perception – viewed child's problem as urgent so ED seen as more appropriate, better	Dixon-Woods: candidacy; Rogers *et al.*: recursivity – explored in discussion (see note in Hunter re 'recursivity')

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
McGuigan and Watson 2010, UK[54]	ED	To discover the factors influencing patient decisions to attend EDs for non-urgent treatment	Short, semistructured telephone interviews (mean length 3 minutes); 196 adults	No	Reasons for attendance: • Regarded their conditions as serious and in need of urgent attention • Could not obtain appointments with GP • Had been advised to do so by, for example, families, friends, pharmacists, health-care helpline advisers or GP receptionists • Expected their GP to send them to ED anyway • Knew nowhere else to go for help • Were not registered with a GP • Lived near an ED • Type of illness/injury (soft-tissue injuries largest group) and duration of symptoms (lasting longer than expected) • Diagnostics (especially X-rays) – expectation of need for tests available only at the ED	Zola: five triggers for seeking help when ill or injured

continued

TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Neill *et al.* 2016, UK[83]	Service use decisions	To examine how parents of children aged under 5 years from a range of socioeconomic groups use information to make decisions during acute childhood illness at home: *Consultation rates for children are rising, yet little is known about factors that influence parents' help-seeking behaviours . . .* *Professional and political solutions have not reduced demand; therefore collaborative approaches . . . are now needed to improve parents' access to information* *Ongoing epidemiological research aims to identify those most likely to consult, so interventions can be targeted at these groups. This must be balanced with concerns about discouraging service use by children who need urgent care*	Focus groups and interviews; 27 parents from South Asia, travelling and white British communities	Parents: focus of the paper	• *Effect of the nature of the child's illness on help seeking:* child's distress, symptom duration or unfamiliarity important, fear of serious illness • *Experience and knowledge and their influence on help-seeking:* instinct/experience important; more concern in first-time parents; previous failure to recognise serious illness can undermine confidence; some just worry more • *Social support and its impact on help-seeking behaviours: value of social networks* – Travelling/South Asian people are most likely ask their parents, white British people ask family who are HCPs or lay experts; other resources used to check legitimacy of using health services; single parents' logistical problems accessing help; timing of day/week affects decision	–

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
					• *Access to health services:* difficulty getting GP appointments leads to use of other services; NHS Direct used to check legitimacy of help-seeking; talking to receptionists a barrier, especially with language; WICs not valued – no continuity, unwilling to prescribe, refer back to GP • *Trust in service provider and effect on help-seeking behaviour:* affected by existing relationship and experiences; loss of trust when illness missed, lack of examination, ineffective treatment, conflicting into, not answering questions, referring on • *Social expectations and influence on parents' help-seeking behaviour:* wanting to do the right thing for child and in the eyes of health-care professionals and society – feeling inferior to doctors, being labelled as inappropriate user, worry about being criticised, not taken seriously in future	

continued

TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Olsson and Hansagi 2001, Sweden[69]	ED	To explore what lies behind repeated ED use from the patients' own perspectives: *A subgroup of patients make frequent use of hospital EDs, thereby accounting for a substantial portion of the total number of visits to these facilities . . .* *Repeated visits may frustrate the staff . . . as these patients' complaints are often judged as non-urgent and inappropriate for ED care*	In-depth interviews; 10 adult patients	Deprivation not deliberately targeted but sample 'all . . . outside or on the periphery of the labour market . . . working lives . . . severely disrupted by their health problems'	Key points: • *Symptoms are perceived as a threat to life and to autonomy* – fear of dying; previous trauma (own or in others) triggering increased concern; trying to maintain autonomy but feeling of powerlessness forcing help-seeking • *Struggles with adverse life circumstances* – scarce resources, health problems, poor support, precarious situations • *Needing frequent help associated with feelings of inferiority* – wanting help-seeking to be respected, satisfaction with care reduced when feel their use is classified as inappropriate or when symptoms are belittled • Occasional referrals to psychiatrist do not seem to lead to any continuous treatment or change in help-seeking behaviour	Brief exploration of how patients' presentation of their problems and match with the services provided affects staff attitudes and how well needs are met. References include Dingwall: categorisation of 'good patients, bad patients and children'

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Shaw *et al.* 2013, USA[55]	ED	Exploring the decision-making processes to use the ED for non-urgent needs of medically underserved patients	Semistructured interviews; 30 adult patients	No: half unemployed but no discussion of deprivation	*Two subgroups: with and without knowledge of alternatives* *1. No knowledge of alternative primary care options:* no PCP; belief that ED available only if had no insurance *2. Knowledge of alternatives*: • instructed by a medical professional – specialists and PCP • *access barriers to regular source of care* – PCP closed, no appointment in time, long wait at clinic, negative past experiences • *perceived racial issues* – discomfort as no other patients from own racial background; perceived to provide care for immigrants that is assumed to be poorer quality • *defining health-care need as an emergency requiring immediate attention* – different places for different needs, ED most appropriate in this situation • *transportation/location* – most had no car, proximity to service important • *cost of care* – if no insurance PCP require payment upfront, ED bill afterwards; balancing ED costs with future costs to own well-being	Andersen: behavioural model of health services use – explored and elaborated in discussion

continued

TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Stafford *et al.* 2014, UK[56]	Mixed emergency/ urgent care: ED, WIC OOH service	To explore why patients with simple mechanical back pain seek urgent care	Semistructured interviews; 11 adult patients	Simple mechanical back pain: focus of the paper	• *GP access:* unsuccessful in getting an appointment; directed to urgent care; surgery closed • *Pain and analgesia:* pain intensity, desire for quick relief • *Impaired function:* walking, daily living, child care – distress motivating help-seeking • *Different:* unlike previous episodes; prompted fear, frustration, anger and pessimism • *Concern that something wrong* • *Investigation:* wanting further examination to prove there is a problem or to understand problem • *Third party:* advised to use urgent care by health-care professionals or family; use this route directly on subsequent occasions • *Repeat visits*: continue to go back even though not satisfied with outcomes	–

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Wilkin *et al.* 2012, USA[84]	ED	What factors influence residents' [in a low-income urban community] decisions to use emergency versus primary care?	Community forum discussions; three groups of 12–21 adults from area with high 911 use (only some participants identified as 911 users)	Deprivation: community with low socioeconomic status, poor health – focus of the paper	• *Knowledge related to using emergency versus primary health care options:* understanding the concept of emergency but hard to distinguish in a real situation • *Available health care services:* knowledgeable about local services, but did not think they could meet their needs because of lack of specialists • *Attitudes about emergency and primary health care:* frustration with PCP referrals out of area; long waiting times for appointments and to be seen (also at ED); poor customer service in clinics – public discussion of personal matters, rudeness, judgement • *Barriers to primary care:* affordability of health care especially if lack of insurance; complex paperwork for reduced-price health care; transportation difficulties leading to missed PCP appointments, no awareness of free transport services	–

continued

TABLE 17 Data extraction for included qualitative articles (*continued*)

Authors, year of publication and country	Service	Stated aim/objective, plus additional text where this provides justification for inclusion of the paper	Data collection method; number of participants	Identified subgroup and degree of focus in paper	Key themes/issues identified	Formal theories explicitly named in text and informing methods and/or discussion
Woolfenden *et al.* 2000, Australia[57]	PED	Explored the parental attitudes, perceptions and beliefs that play a role in the use of a tertiary PED when a child has a non-urgent illness	In-depth semistructured interviews; 25 parents of children (age range not specified, sample includes up to 14)	Parents – focus of the paper	• *Parental triage:* factors influencing interpretation of severity – fever, breathing, pain, vomiting, change of symptoms, lack of resolution with treatment, age, first child, medical history • *Expertise:* PED seen as having greater knowledge, training, experience, child-specific; setting more child-friendly; feeling helpless, guilty, stressed; responsibility to relieve suffering; greater confidence as children older • *Access:* lack of acceptable local health care, especially out of hours; own GP unavailable; prefer PED even when local services accessible • *Parental expectations:* dissatisfied with local services – poor communication, feeling rushed, not treated as individuals, inconsistent or unclear explanation and advice; seeking reassurance from expert	–

HCP, health-care provider; LTC, long-term condition; OOH, out of hours; PCP, primary care provider; PED, paediatric emergency department.
a Ahl and Nyström[146] provided additional information relating to the same study, particularly methods and sample.
b The 2002 Goeman *et al.*[147] paper provided additional information relating to the same study, particularly methods and sample.

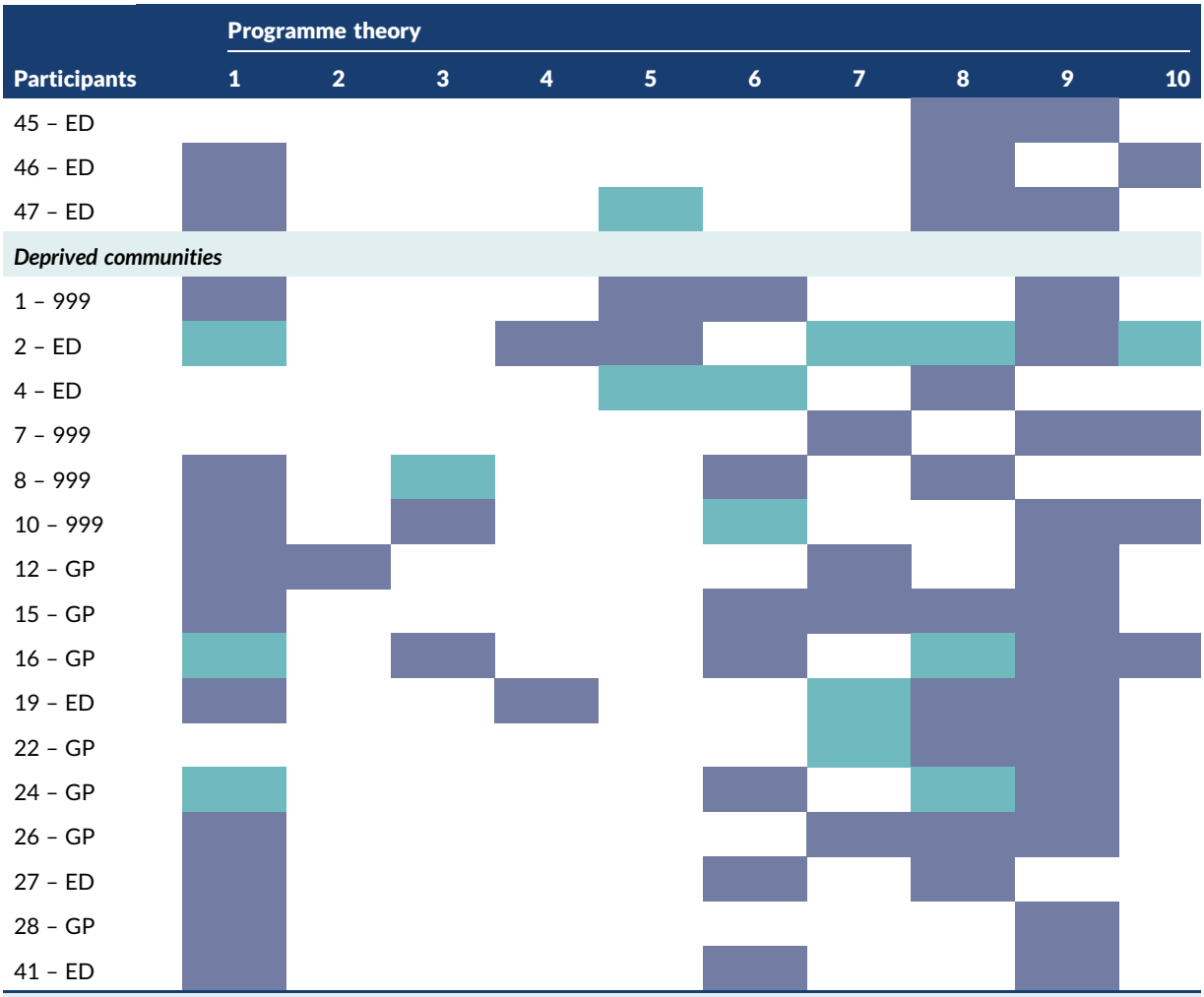
Appendix 6 Programme theories in interviews

TABLE 18 Evidence of programme theories for interview participants

Participants	Programme theory 1	2	3	4	5	6	7	8	9	10
Parents										
11 – 999	■	■	■				■		■	
13 – ED	■		■			■		■		
14 – ED	■		■			■		■	■	
17 – GP	■		■			■		■		
18 – ED	■					■		■	■	■
20 – ED	■	■	■			■		■	■	
21 – ED	■		■				■		■	■
23 – GP	■		■	■				■	■	
25 – GP	■		■			■		■	■	
29 – ED	■	■	■					■	■	
30 – ED	■		■				■		■	■
31 – GP	■	■	■						■	
32 – GP	■	■	■			■	■		■	
33 – ED	■	■	■					■	■	
42 – GP	■	■	■						■	
48 – ED	■		■					■	■	
Young adults										
3 – ED	■					■		■	■	
5 – ED	■	■		■		■		■	■	■
6 – ED	■				■	■	■	■	■	
9 – 999	■					■	■		■	
34 – GP				■			■	■		
35 – GP	■		■	■	■	■	■		■	
36 – ED	■	■					■	■	■	
37 – ED	■				■	■			■	
38 – GP	■	■		■		■		■	■	■
39 – GP	■			■		■	■	■		
40 – GP							■		■	■
43 – ED	■				■	■		■	■	■
44 – GP	■			■		■	■	■	■	

continued

TABLE 18 Evidence of programme theories for interview participants (*continued*)



Purple shading, clear evidence of PT; blue shading, indications/inference that PT is present.

Appendix 7 Sociodemographic details of focus group attendees

TABLE 19 Sociodemographic details of focus group attendees

Characteristic	Focus group attendees (*n*)			Total (*n*)
	Parents	Young adults	Socially deprived	
Sex				
Male	0	2	2	4
Female	5	4	2	11
Age (years)				
18–20	0	1	0	1
21–30	2	5	0	7
31–40	2	0	1	3
41–50	0	0	0	0
51–60	0	0	1	1
≥ 60	0	0	2	2
Missing data	1	0	0	1
Length of residence in city (years)				
< 1	0	0	0	0
1–5	1	4	0	5
> 5	3	2	4	9
Missing data	1	0	0	1
Ethnicity				
White British	1	5	3	9
White other	1	0	0	1
Black British	0	0	1	1
Black African	1	0	0	1
Chinese	0	1	0	1
Pakistani	1	0	0	1
Missing data	1	0	0	1
Marital status				
Married/living as married	3	1	2	6
Separated/divorced	0	0	1	1
Single/not married	1	5	1	7
Missing data	1	0	0	1
Children?				
Yes	5	0	3	8
No	0	6	1	7

continued

TABLE 19 Sociodemographic details of focus group attendees (*continued*)

Characteristic	Focus group attendees (*n*)			Total (*n*)
	Parents	Young adults	Socially deprived	
Employment status				
Working full time	0	2	1	3
Working part time	3	2[a]	2[a]	7[a]
Homemaker full time	1	0	0	1
Retired	0	0	1[a]	1[a]
Student (full time)	0	3[a]	0	3[a]
Missing data	1	0	0	1

a One young adult was working part-time and a full-time student; one person in the deprived group was retired and working part time.

Appendix 8 NHS Choices advice for symptoms in vignettes

Below we summarise what NHS Choices says about the six symptoms that we used in our vignettes.

Cough

URL: www.nhs.uk/conditions/cough (accessed 25 February 2020)

They go away in 3 weeks and there is no need to see a GP.

A pharmacist can help.

See a GP only if you have chest pain, it's hard to breathe or you have had it for > 3 weeks.

Diarrhoea and vomiting

URL: www.nhs.uk/conditions/diarrhoea-and-vomiting/ (accessed 25 February 2020)

Common in adults, children and babies.

Usually treat it at home.

Take paracetamol but check the leaflet before giving to a child.

Diarrhoea usually stops within 5–7 days and vomiting usually stops in 1 or 2 days.

A pharmacist can help.

Call NHS 111 for children under some circumstances.

Go to A&E if have sudden severe headache or vomit blood.

Bruised ribs

URL: www.nhs.uk/conditions/broken-or-bruised-ribs/ (accessed 25 February 2020)

Ribs cannot be easily splinted or supported like other bones, so they are usually left to heal naturally.

There's often no need for an X-ray.

Take painkillers.

Call NHS 111 if not improved in a few weeks or if you have a high temperature.

Call 999 or go to A&E if caused by a serious accident or coughing up blood.

Back pain

URL: www.nhs.uk/conditions/back-pain/ (accessed 25 February 2020)

It is very common and normally improves within a few weeks or months.

Usually not serious and will get better over time.

Take painkillers.

Get help if pain does not start to improve in a few weeks, pain stops day-to-day activities, pain is severe and getting worse or struggling to cope.

Contact GP or NHS 111 if have numbness in buttocks, a high temperature or if it started after a serious accident.

Fever in children

URL: www.nhs.uk/conditions/fever-in-children/ (accessed 25 February 2020)

High temperature is very common in young children.

You can usually look after your child or baby at home. The temperature should go down over 3 or 4 days.

Give them paracetamol or ibuprofen depending on their age.

See GP if child is under 3 months old and has a temperature of $\geq$ 38 °C, 3–6 months with temperature of $\geq$ 39 °C, has rash, high temperature has lasted > 5 days, is not their usual self or has high temperature that does not come down with drugs.

It's quite rare for fever to be a sign of anything serious but call 999 or go to A&E if the child has a rash that does not fade, has a stiff neck or has a weak high-pitched cry that is not their normal cry.

Call NHS 111 if cannot speak to GP and do not know what to do.

Appendix 9 Results of logistic regressions for tendency to make 'clinically unnecessary' use of a service

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Sociodemographic characteristics					
Age (years)			0.000		
18–24	1	169			
25–34	0.9 (0.5 to 1.6)	384			
35–44	0.8 (0.4 to 1.4)	467			
45–54	0.6 (0.3 to 1.1)	469			
55–64	0.9 (0.5 to 1.6)	508			
65–74	1.3 (0.8 to 2.3)	499			
≥ 75	1.6 (0.9 to 2.8)	405			
Sex			0.018		0.015
Female	1	1649		1	
Male	**1.3 (1.1 to 1.7)**	1257		**1.5 (1.1 to 2.0)**	
Ethnicity			0.000		0.005
White	1	2572		1	
BAME	**2.0 (1.5 to 2.7)**	334		**1.9 (1.2 to 3.0)**	
Social class			0.000		0.004
I	1	214		1	
II	1.7 (0.9 to 3.3)	1039		1.6 (0.7 to 3.6)	
III non-manual	2.0 (0.98 to 3.95)	569		1.3 (0.5 to 3.0)	
III manual	4.3 (2.2 to 8.6)	416		3.0 (1.3 to 7.1)	
IV and V	4.5 (2.3 to 8.9)	524		2.0 (0.8 to 4.6)	
Armed forces	2.2 (0.7 to 6.6)	52		1.1 (0.2 to 3.0)	
Deprivation			0.000		
5 (affluent)	1	611			
4	1.0 (0.6 to 1.4)	638			
3	1.0 (0.7 to 1.5)	536			
2	1.5 (1.0 to 2.2)	545			
1 (most deprived)	1.8 (1.3 to 2.6)	576			

continued

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Rurality			0.087		
Rural	1	665			
Urban	1.3 (0.96 to 1.7)	2241			
Region			0.473		
North England	1	474			
Midlands	0.9 (0.6 to 1.3)	794			
South England	0.9 (0.6 to 1.2)	957			
London	1.3 (0.8 to 2.0)	285			
Wales	1.0 (0.6 to 1.9)	132			
Scotland	0.9 (0.5 to 1.4)	264			
In household with children aged < 5 years old			0.119		
No	1	2591			
Yes	0.7 (0.5 to 1.1)	300			
Resources available					
Car ownership			0.000		0.000
≥ 1 car	1	1478		1	
No car	3.3 (2.4 to 4.4)	428		2.1 (1.4 to 3.2)	
Missing	1.4 (1.0 to 1.8)	1000		1.7 (1.2 to 2.4)	
Personal access to the internet	0.000				0.004
Yes	1	2542		1	
No	2.9 (2.2 to 3.8)	364		1.8 (1.2 to 2.6)	
Health					
General health			0.000		
Excellent	1	223			
Very good	0.7 (0.4 to 1.3)	725			
Good	1.1 (0.7 to 1.9)	799			
Fair	2.2 (1.3 to 3.8)	360			
Poor	2.3 (1.2 to 4.2)	163			
Can't choose	2.2 (0.9 to 5.7)	39			
Missing/not included		597			
Long-term limiting illness			0.000		
None	1	1766			
Non-limiting	1.3 (0.96 to 1.7)	586			
Limiting	2.0 (1.6 to 2.7)	541			

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Programme theories					
1, Risk: uncertainty causes anxiety					
Worry pain is a sign of something serious			0.000		0.001
Not likely at all	1	358		1	
Not likely	0.7 (0.5 to 1.03)	1138		0.7 (0.4 to 2.3)	
Fairly likely	1.4 (0.9 to 2.0)	876		1.6 (0.9 to 2.7)	
Very likely	2.1 (1.4 to 3.3)	415		1.6 (0.9 to 2.9)	
It depends	1.4 (0.7 to 2.6)	119		1.5 (0.7 to 3.5)	
Confident in deciding to see a doctor or self-care			0.038		
Very confident	1	993			
Fairly	1.2 (0.9 to 1.7)	1130			
Not very	1.7 (0.9 to 3.1)	89			
Never had problem	2.1 (1.2 to 3.7)	97			
2, Risk: previous traumatic event					
Had problem, did not see doctor and was serious			0.114		
No	1	2219			
Yes	1.2 (0.95 to 1.6)	687			
3, Risk: responsibility for others					
	Variable not tested this in regression				
4, Speed: need to get back to normal					
Sleep			0.000		
Do not see doctor	1	2010			
See doctor if sleep loss	**1.9 (1.4 to 2.5)**	634			
See doctor if any loss	**3.4 (2.5 to 4.7)**	262			
Work			0.000		
Do not see doctor	1	935			
See doctor if work loss	1.3 (0.97 to 1.7)	1709			
See doctor if any loss	**3.3 (2.3 to 4.8)**	262			
5, Speed: need to seek pain relief					
Likely to take medication			0.106		
Very likely	1	1081			
Fairly	**0.7 (0.6 to 0.97)**	1257			
Not very	0.8 (0.5 to 1.2)	376			
Not at all	1.3 (0.8 to 2.1)	135			
Depends	0.8 (0.3 to 1.9)	57			

continued

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
6, Speed: waited long enough					
	Variable not included				
7a, Stressful lives					
Overwhelmed when have health problem					0.000
Strongly disagree	1	487	0.000	1	
Disagree	1.3 (0.8 to 2.0)	872		1.1 (0.6 to 1.7)	
Neither	**3.1 (2.0 to 4.9)**	537		**2.3 (1.4 to 3.8)**	
Strongly agree/agree	**4.4 (2.7 to 7.0)**	314		**2.2 (1.3 to 3.8)**	
Never had problem	1.4 (0.6 to 3.3)	99		1.5 (0.6 to 3.6)	
Find life stressful			0.095		
No	1	637			
A bit	0.8 (0.6 to 1.1)	1316			
Quite	0.9 (0.6 to 1.2)	637			
Very	1.4 (0.9 to 2.1)	297			
Don't know	0.9 (0.2 to 3.8)	19			
Someone to care for them if they are ill			0.000		
Definitely	1	1240			
Probably	1.0 (0.7 to 1.3)	697			
Probably not	**1.6 (1.1 to 2.3)**	280			
Don't know	**2.9 (1.7 to 4.9)**	92			
Can take time off work for GP			0.000		
Yes	1	1078			
Yes but not easy	0.7 (0.4 to 1.2)	275			
No	1.0 (0.5 to 2.0)	127			
Not applicable/missing	**2.2 (1.7 to 2.9)**	1426			
7b, Low burden					
Travel to ED	1		0.000		
Very difficult	0.7 (0.5 to 1.1)	610			
Neither	**0.6 (0.4 to 0.7)**	269			
Fairly easy	**0.4 (0.3 to 0.6)**	1172			
Very easy	1	855			
Opening hours a problem			0.009		
Disagree/strongly disagree	1	1098			
Neither	**1.6 (1.2 to 2.2)**	608			
Strongly agree/agree	1.1 (0.8 to 1.5)	603			

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Prefer no appointments			0.000		
Disagree/strongly disagree	1	685			
Neither	1.3 (0.9 to 1.8)	799			
Strongly agree/agree	**1.9 (1.3 to 2.7)**	825			
Want convenient times			0.905		
Disagree/strongly disagree	1	253			
Neither	1.0 (0.6 to 1.5)	708			
Strongly agree/agree	0.9 (0.6 to 1.4)	1348			
Willing to wait in waiting room			0.170		
Disagree/strongly disagree	1	361			
Neither	1.0 (0.5 to 1.8)	194			
Strongly agree/agree	1.3 (0.9 to 1.9)	2351			
8, Compliance with family/friends					
Check with family and friends for what to do			0.010		0.022
Not very likely	1	545		1	
Not likely	0.8 (0.5 to 1.1)	746		0.9 (0.5 to 1.3)	
Fairly likely	**0.7 (0.5 to 0.98)**	1061		**0.6 (0.4 to 0.9)**	
Very likely	1.2 (0.8 to 1.6)	554		1.1 (0.7 to 1.8)	
9, Views of services					
Prefer ED for quick tests			0.000		
Disagree/strongly disagree	1	1159			
Neither	**1.9 (1.4 to 2.6)**	797			
Strongly agree/agree	**2.8 (2.0 to 4.0)**	353			
Missing, self-complete		0			
Doctors know more at ED			0.001		
Disagree/strongly disagree	1	850			
Neither	1.5 (1.1 to 2.1)	1041			
Strongly agree/agree	2.0 (1.4 to 2.9)	418			
Missing, self-complete		0			
No confidence in GP			0.203		
Strongly disagree	1	538			
Disagree	1.3 (0.9 to 1.9)	1008			
Neither	**1.6 (1.0 to 2.4)**	446			
Agree	**1.8 (1.1 to 3.1)**	165			
Strongly agree	1.3 (0.6 to 2.9)	76			

continued

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Don't know	2.2 (0.9 to 5.4)	42			
Missing	1.9 (0.7 to 5.3)	34			
Missing, self-complete		0			
10, Frustration with access to GP					
Hard to get GP appointment			0.543		
Disagree/strongly disagree	1	819			
Neither	1.2 (0.8 to 1.7)	353			
Strongly agree/agree	1.0 (0.8 to 1.3)	1137			
Missing, self-complete		0			
Registered with GP			0.329		
Yes	1	2840			
No	0.6 (0.3 to 1.6)	65			
Work or looking after family makes it difficult to see GP			0.000		0.000
Disagree/strongly disagree	1	1197		1	
Neither	1.3 (0.9 to 1.8)	455		1.0 (0.7 to 1.4)	
Strongly agree/agree	**0.5 (0.3 to 0.8)**	410		**0.4 (0.2 to 0.6)**	
Not applicable	**1.6 (1.1 to 2.4)**	247		1.4 (0.9 to 2.2)	
Believe people use ED because can't get GP appointment			0.021		
Strongly agree/agree	1	2441			
Neither	1.2 (0.9 to 1.8)	339			
Disagree/strongly disagree	1.9 (1.2 to 3.0)	126			
Awareness of services					
Know range of NHS services to use			0.573		
Very confident	1	1436			
Fairly confident	1.1 (0.9 to 1.4)	1189			
Not confident/not at all	1.0 (0.7 to 1.6)	280			
Can find out when NHS services are open			0.048		
Very confident	1	1487			
Fairly confident	1.2 (0.96 to 1.6)	1163			
Not confident/not at all	**1.6 (1.1 to 2.3)**	255			
Can find out what test available at services			0.440		
Very confident	1	963			
Fairly confident	0.8 (0.7 to 1.1)	1307			
Not confident/not at all	0.96 (0.7 to 1.3)	635			

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
How to contact GP OOH			0.716		
Very	1	1338			
Fairly	1.1 (0.8 to 1.4)	1056			
Not very confident	1.1 (0.7 to 1.5)	389			
Not at all	1.3 (0.8 to 2.3)	122			
Will look up on the internet to see what to do			0.000		
Very likely	1	428			
Fairly likely	0.7 (0.5 to 1.1)	752			
Not very likely	1.0 (0.7 to 1.5)	680			
Not at all	1.6 (1.1 to 2.3)	1016			
Missing	1.0 (0.3 to 3.4)	30			
Will look up on the internet to decide what problem is			0.000		
Very likely	1	667			
Fairly likely	0.7 (0.5 to 0.9)	797			
Not very likely	0.9 (0.6 to 1.3)	472			
Not at all	**1.5 (1.1 to 2.1)**	940			
Missing	0.9 (0.3 to 3.1)	30			
Recursivity					
If tests are done I was right to make contact			0.000		
Disagree/strongly disagree	1	280			
Neither	1.1 (0.7 to 1.8)	793			
Strongly agree/agree	**1.9 (1.2 to 3.0)**	1236			
Missing, self-complete		0			
Health literacy					
Lower health literacy compared with higher health literacy – understand information	**2.1 (1.8 to 2.6)**	2269	0.000	**1.7 (1.3 to 2.0)**	0.000
Lower health literacy compared with higher health literacy – ability to communicate	**1.7 (1.4 to 2.0)**	2269	0.000		
Recent use of health care					
Ambulance use			0.000		0.000
Never	1	1349		1	
≥ 12 months	1.2 (0.9 to 1.6)	1108		**1.4 (1.0 to 1.9)**	
< 12 months	**2.2 (1.6 to 3.0)**	448		**2.5 (1.7 to 3.8)**	
Ambulance frequent user			0.002		
< 3 times	1	2842			
≥ 3 times in 12 months	**2.7 (1.5 to 4.8)**	64			

continued

TABLE 20 Variables explaining tendency to call emergency ambulance service in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
ED use			0.096		
Never	1	411			
≥ 12 months	0.8 (0.5 to 1.1)	1478			
6–12 months	0.9 (0.6 to 1.4)	366			
3–6 months	1.2 (0.8 to 1.9)	234			
< 3 months	1.0 (0.7 to 1.5)	416			
ED frequent user			0.000		
< 3 times	1	2577			
≥ 3 times in 12 months	**2.4 (1.6 to 3.5)**	328			
Contacted GP			0.115		
Never	1	65			
≥ 12 months	0.4 (0.2 to 0.9)	454			
6–12 months	0.5 (0.3 to 1.1)	484			
3–6 months	**0.4 (0.2 to 0.9)**	518			
< 3 months	**0.5 (0.3 to 0.99)**	1384			
Attitudes towards overuse of health services					
Too many use 999			0.657		
Strongly agree/agree	1	2516			
Neither	1.1 (0.7 to 1.5)	313			
Disagree/strongly disagree	1.3 (0.7 to 2.6)	77			
Too many use ED			0.032		
Strongly agree/agree	1	2515			
Neither	1.3 (0.9 to 1.9)	291			
Disagree/strongly disagree	**1.8 (1.1 to 3.1)**	100			
Too many use GP			0.071		
Strongly agree/agree	1	2082			
Neither	1.1 (0.9 to 1.5)	577			
Disagree/strongly disagree	**1.5 (1.1 to 2.2)**	247			
Reluctance to use ED			0.000		
Strongly agree/agree	1	1348			
Neither	**0.7 (0.5 to 0.9)**	734			
Disagree/strongly disagree	**0.5 (0.3 to 0.6)**	824			

OOH, out of hours.
Bold text denotes 95% CIs that do not contain 1.

TABLE 21 Full model for ambulance

Variables	Significance	Exp(B)	95% CI for Exp(B) Lower	Upper
Age of respondent(grouped) < 7 category > dv	0.542			
Age of respondent(grouped) < 7 category > dv(1)	0.286	1.650	0.657	4.143
Age of respondent(grouped) < 7 category > dv(2)	0.880	1.075	0.418	2.765
Age of respondent(grouped) < 7 category > dv(3)	0.730	1.180	0.462	3.015
Age of respondent(grouped) < 7 category > dv(4)	0.342	1.551	0.628	3.833
Age of respondent(grouped) < 7 category > dv(5)	0.171	1.910	0.756	4.823
Age of respondent(grouped) < 7 category > dv(6)	0.321	1.640	0.618	4.353
Sex of respondent(1)	0.017	0.664	0.475	0.930
Limiting long term condition or disability dv	0.602			
Limiting long term condition or disability dv(1)	0.484	1.157	0.769	1.743
Limiting long term condition or disability dv(2)	0.701	0.911	0.567	1.465
Respondent: social class [pre-SOC2000] best estimate dv	0.016			
Respondent: social class [pre-SOC2000] best estimate dv(1)	0.300	1.588	0.662	3.811
Respondent: social class [pre-SOC2000] best estimate dv(2)	0.616	1.267	0.503	3.194
Respondent: social class [pre-SOC2000] best estimate dv(3)	0.020	2.938	1.184	7.290
Respondent: social class [pre-SOC2000] best estimate dv(4)	0.106	2.110	0.854	5.213
Respondent: social class [pre-SOC2000] best estimate dv(5)	0.724	1.328	0.275	6.423
IMD_ALL	0.253			
IMD_ALL(1)	0.128	1.451	0.899	2.344
IMD_ALL(2)	0.477	1.209	0.716	2.040
IMD_ALL(3)	0.887	1.038	0.618	1.745
IMD_ALL(4)	0.074	1.621	0.955	2.751
DV To which of these racial groups do you consider you belong? (compressed)(1)	0.009	1.938	1.176	3.194
When did you last see or speak to the 999 ambulance service (for yourself or someone else)?	0.000			
When did you last see or speak to the 999 ambulance service (for yourself or someone else)?(1)	0.005	0.551	0.362	0.839
When did you last see or speak to the 999 ambulance service (for yourself or someone else)?(2)	0.000	0.399	0.259	0.614
Do you personally have internet access at home/work/elsewhere or on a smartphone/tablet/mobile device?(1)	0.177	1.389	0.862	2.239
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be	0.191			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(1)	0.027	0.519	0.290	0.929
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(2)	0.115	0.568	0.281	1.147
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(3)	0.629	0.809	0.343	1.909

continued

TABLE 21 Full model for ambulance (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(4)	0.698	1.743	0.106	28.792
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do	0.695			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(1)	0.330	1.385	0.719	2.669
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(2)	0.332	1.436	0.692	2.979
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(3)	0.670	1.225	0.482	3.112
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(4)	0.431	0.323	0.019	5.386
How many, if any, cars or vans does your household own or have the regular use of? <summary>	0.001			
How many, if any, cars or vans does your household own or have the regular use of? <summary>(1)	0.001	0.469	0.297	0.739
How many, if any, cars or vans does your household own or have the regular use of? <summary>(2)	0.422	0.834	0.536	1.299
In general, would you say your health is … (excellent to poor)	0.118			
In general, would you say your health is … (excellent to poor)(1)	0.593	0.841	0.445	1.587
In general, would you say your health is … (excellent to poor)(2)	0.567	0.834	0.447	1.555
In general, would you say your health is … (excellent to poor)(3)	0.294	1.434	0.732	2.812
In general, would you say your health is … (excellent to poor)(4)	0.850	0.924	0.406	2.103
In general, would you say your health is … (excellent to poor)(5)	0.250	2.197	0.575	8.392
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D	0.514			
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(1)	0.402	0.857	0.597	1.230
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(2)	0.162	0.572	0.261	1.252
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(3)	0.495	0.743	0.317	1.742
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do	0.030			
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(1)	0.008	0.545	0.348	0.855
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(2)	0.519	0.856	0.534	1.372
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(3)	0.872	0.959	0.574	1.601
HPrbDr13	0.239			

TABLE 21 Full model for ambulance (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
HPrbDr13(1)	0.221	1.259	0.870	1.822
HPrbDr13(2)	0.109	1.573	0.904	2.735
My work or looking after my family makes it difficult to see a GP SC: B, C, D	0.006			
My work or looking after my family makes it difficult to see a GP SC: B, C, D(1)	0.004	2.516	1.341	4.720
My work or looking after my family makes it difficult to see a GP SC: B, C, D(2)	0.001	2.732	1.498	4.983
My work or looking after my family makes it difficult to see a GP SC: B, C, D(3)	0.001	3.336	1.632	6.820
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious	0.001			
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(1)	0.621	1.120	0.714	1.757
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(2)	0.003	0.488	0.302	0.790
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(3)	0.345	0.739	0.394	1.385
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(4)	0.541	1.291	0.569	2.929
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?	0.266			
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(1)	0.593	0.849	0.465	1.548
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(2)	0.459	1.164	0.779	1.740
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(3)	0.301	0.778	0.483	1.253
The opening hours for some NHS services are a problem for me SC: B, C, D	0.196			
The opening hours for some NHS services are a problem for me SC: B, C, D(1)	0.508	1.163	0.744	1.818
The opening hours for some NHS services are a problem for me SC: B, C, D(2)	0.348	0.814	0.529	1.252
I prefer NHS services where I don't need to make an appointment SC: B, C, D	0.500			
I prefer NHS services where I don't need to make an appointment SC: B, C, D(1)	0.258	0.801	0.545	1.177
I prefer NHS services where I don't need to make an appointment SC: B, C, D(2)	0.889	0.970	0.636	1.481
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D	0.353			
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D(1)	0.422	0.856	0.585	1.252

continued

TABLE 21 Full model for ambulance (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D(2)	0.338	1.255	0.788	2.000
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D(3)	0.347	1.470	0.659	3.283
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D	0.004			
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(1)	0.888	1.033	0.656	1.628
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(2)	0.005	0.500	0.309	0.807
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(3)	0.016	0.480	0.264	0.872
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(4)	0.353	0.658	0.272	1.590
Can you take time away from your work, during working hours, to see a GP?	0.694			
Can you take time away from your work, during working hours, to see a GP?(1)	0.325	0.671	0.303	1.485
Can you take time away from your work, during working hours, to see a GP?(2)	0.786	1.134	0.459	2.802
Can you take time away from your work, during working hours, to see a GP?(3)	0.699	1.091	0.702	1.694
I think doctors at A&E know more than GPs SC: B, C, D	0.927			
I think doctors at A&E know more than GPs SC: B, C, D(1)	0.760	1.069	0.696	1.641
I think doctors at A&E know more than GPs SC: B, C, D(2)	0.994	0.998	0.622	1.602
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D	0.215			
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(1)	0.913	0.975	0.617	1.540
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(2)	0.159	0.705	0.433	1.147
If a service does tests on me, it shows I was right to go to that service SC: B, C, D	0.159			
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(1)	0.087	0.712	0.483	1.050
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(2)	0.658	1.135	0.647	1.990
Ability	0.790	0.952	0.661	1.371
Understand	0.047	0.690	0.478	0.996
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open	0.216			
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open(1)	0.401	1.160	0.821	1.638
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open(2)	0.227	0.689	0.376	1.261

TABLE 21 Full model for ambulance (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B) Lower	Upper
I think too many people use A&E when they do not need to	0.639			
I think too many people use A&E when they do not need to(1)	0.648	0.879	0.505	1.529
I think too many people use A&E when they do not need to(2)	0.428	1.390	0.616	3.140
Many people use A&E because they cannot get a GP appointment easily	0.207			
Many people use A&E because they cannot get a GP appointment easily(1)	0.157	1.443	0.868	2.397
Many people use A&E because they cannot get a GP appointment easily(2)	0.220	1.579	0.761	3.275
Many people are reluctant to use A&E when they have an urgent health problem	0.121			
Many people are reluctant to use A&E when they have an urgent health problem(1)	0.466	0.864	0.583	1.280
Many people are reluctant to use A&E when they have an urgent health problem(2)	0.040	0.660	0.444	0.981
Constant	0.823	0.808		

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes

Variables	Univariate Odds ratio (95% CI)	*n*	*p*-value	Final multivariable model Odds ratio (95% CI)	*p*-value
Sociodemographic characteristics					
Age (years)			0.977		
18–24	1	169			
25–34	1.0 (0.6 to 1.5)	384			
35–44	1.0 (0.6 to 1.5)	467			
45–54	0.9 (0.6 to 1.4)	469			
55–64	0.9 (0.6 to 1.4)	508			
65–74	0.9 (0.7 to 1.5)	499			
≥ 75	0.8 (0.6 to 1.5)	405			
Sex			0.001	1	0.015
Female	1	1649			
Male	**1.4 (1.1 to 1.7)**	1257		**1.3 (1.0 to 1.6)**	
Ethnicity			< 0.001		0.003
White	1	2572		1	
BAME	**2.1 (1.6 to 2.7)**	334		**1.7 (1.2 to 2.4)**	

continued

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Social class			0.034		
I	1	214			
II	**1.6 (1.0 to 2.5)**	1039			
III non-manual	1.6 (0.97 to 2.5)	569			
III manual	**2.0 (1.2 to 3.3)**	416			
IV and V	**1.8 (1.1 to 2.9)**	524			
Armed forces	**2.9 (1.4 to 6.1)**	52			
Deprivation			0.051		
5 (affluent)	1	611			
4	1.0 (0.7 to 1.3)	638			
3	0.9 (0.7 to 1.3)	536			
2	1.0 (0.7 to 1.3)	545			
1 (most deprived)	**1.4 (1.0 to 1.8)**	576			
Rurality			0.004		
Rural	**1**	665			
Urban	**1.4 (1.1 to 1.8)**	2241			
Region			0.09		
North England	1	474			
Midlands	1.0 (0.7 to 1.3)	794			
South England	0.9 (0.7 to 1.2)	957			
London	1.4 (0.95 to 2.0)	285			
Wales	1.4 (0.9 to 2.3)	132			
Scotland	1.2 (0.8 to 1.8)	264			
In household with children aged < 5 years old			0.503		
No	1	2591			
Yes	1.1 (0.8 to 1.5)	300			
Resources available					
Car ownership	1		0.561		
≥ 1 cars	1.2 (0.9 to 1.5)	1478			
No car	1.1 (0.9 to 1.3)	428			
Missing	1	1000			
Personal access to internet			0.393		
Yes	1	2542			
No	1.1 (0.9 to 1.5)	364			

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Health					
General health			0.775		
Excellent	1	223			
Very good	0.8 (0.5 to 1.2)	725			
Good	1.0 (0.6 to 1.4)	799			
Fair	1.0 (0.6 to 1.5)	360			
Poor	0.9 (0.5 to 1.5)	163			
Can't choose	0.8 (0.3 to 2.1)	39			
Missing/not included		0			
Long-term limiting illness			0.549		
None	1	1766			
Non-limiting	0.9 (0.7 to 1.1)	586			
Limiting	1.0 (0.8 to 1.3)	541			
Don't know	0.8 (0.2 to 3.8)	13			
Programme theories *1, Risk: uncertainty causes anxiety*					
Worry pain is a sign of something serious			< 0.001		
Not likely at all	1	358			
Not likely	1.1 (0.8 to 1.6)	1138			
Fairly likely	1.4 (0.97 to 1.9)	876			
Very likely	**2.0 (1.4 to 2.9)**	415			
It depends	0.9 (0.5 to 1.6)	119			
Confident in deciding to see a doctor or self-care			0.283		
Very confident	1	993			
Fairly confident	1.2 (0.98 to 1.5)	1130			
Not very confident	1.4 (0.8 to 2.4)	89			
Never had problem	1.1 (0.6 to 1.9)	97			
2, Risk: previous traumatic event					
Had problem, did not see doctor and was serious			0.562		
No	1	2219			
Yes	0.9 (0.7 to 1.2)	687			
3, Risk: responsibility for others					

continued

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
4, Speed: need to get back to normal					
Sleep			< 0.001		
Do not see doctor	1	2010			
See doctor if sleep loss	**1.9 (1.5 to 2.4)**	634			
See doctor if any loss	**1.8 (1.3 to 2.5)**	262			
Work					
Do not see doctor	1	935	< 0.001	1	0.037
See doctor if work loss	1.6 (1.3 to 2.0)	1709		1.4 (1.1 to 1.8)	
See doctor if any loss	2.1 (1.5 to 2.9)	262		1.3 (0.9 to 2.1)	
5, Speed: need to seek pain relief					
Likely to take medication			0.162		
Very likely	1	1081			
Fairly likely	0.8 (0.6 to 0.99)	1257			
Not very likely	0.9 (0.7 to 1.3)	376			
Not at all likely	0.6 (0.4 to 1.1)	135			
Depends	0.8 (0.4 to 1.6)	57			
6, Speed: waited long enough					
7a, Stressful lives					
Overwhelmed when have health problem			0.005		
Strongly disagree	1	487			
Disagree	**1.4 (1.0 to 2.0)**	872			
Neither	**1.8 (1.3 to 2.5)**	537			
Strongly agree/agree	**1.9 (1.3 to 2.8)**	314			
Never had problem	1.3 (0.7 to 2.4)	99			
Find life stressful			0.192		
No	1	637			
A bit	1.2 (0.97 to 1.6)	1316			
Quite	1.0 (0.7 to 1.3)	637			
Very	1.1 (0.8 to 1.6)	297			
Don't know	0.6 (0.1 to 2.7)	19			
Someone to care for them if they are ill			0.165		
Definitely	1	1240			
Probably	**0.8 (0.6 to 0.97)**	697			
Probably not	0.9 (0.6 to 1.2)	280			
Don't know	1.0 (0.6 to 1.8)	92			

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Can take time off work for GP			0.270		
Yes	1	1078			
Yes but not easy	1.0 (0.7 to 1.5)	275			
No	0.6 (0.4 to 1.1)	127			
Not applicable/missing	1.1 (0.9 to 1.3)	1426			
7b, Low burden					
Travel to ED			0.251		
Very difficult	1	610			
Neither	0.9 (0.6 to 1.3)	269			
Fairly easy	1.1 (0.8 to 1.4)	1172			
Very easy	0.9 (0.7 to 1.2)	855			
Opening hours a problem			0.974		
Disagree/strongly disagree	1	1098			
Neither	1.0 (0.8 to 1.3)	608			
Strongly agree/agree	1.0 (0.8 to 1.3)	603			
Prefer no appointments			0.553		
Disagree/strongly disagree	1	685			
Neither	1.0 (0.8 to 1.5)	799			
Strongly agree/agree	1.2 (0.9 to 1.5)	825			
Want convenient times			0.899		
Disagree/strongly disagree	1	253			
Neither	0.9 (0.6 to 1.4)	708			
Strongly agree/agree	0.9 (0.6 to 1.3)	1348			
Willing to wait in waiting room			0.222		
Disagree/strongly disagree	1	361			
Neither	1.0 (0.6 to 1.6)	194			
Strongly agree/agree	1.2 (0.9 to 1.7)	2351			
8, Compliance with family/friends					
Check with family and friends for what to do			0.019		
Not very likely	1	545			
Not likely	1.2 (0.9 to 1.7)	746			
Fairly likely	1.2 (0.9 to 1.5)	1061			
Very likely	**1.6 (1.2 to 2.2)**	554			

continued

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
9, Views of services					
Prefer ED for quick tests			< 0.001		0.003
Disagree/strongly disagree	1	1159		1	
Neither	1.3 (0.99 to 1.6)	797		1.2 (0.9 to 1.5)	
Strongly agree/agree	**2.2 (1.5 to 2.7)**	353		**1.7 (1.3 to 2.3)**	
Missing, self-complete		0			
Doctors know more at ED			0.007		
Disagree/strongly disagree	1	850			
Neither	**1.4 (1.1 to 1.8)**	1041			
Strongly agree/agree	**1.6 (1.1 to 2.1)**	418			
Missing, self-complete		0			
No confidence in GP			0.186		
Strongly disagree	1	538			
Disagree	1.2 (0.9 to 1.6)	1088			
Neither	**1.6 (1.1 to 2.2)**	446			
Agree	1.4 (0.9 to 2.2)	165			
Strongly agree	0.9 (0.4 to 1.9)	76			
Don't know	1.7 (0.8 to 3.6)	42			
Missing	1.0 (0.4 to 2.8)	34			
Missing, self-complete		0			
10, Frustration with access to GP					
Hard to get GP appointment			0.636		
Disagree/strongly disagree	1	819			
Neither	1.0 (0.7 to 1.4)	353			
Strongly agree/agree	0.9 (0.7 to 1.1)	1137			
Missing, self-complete		0			
Registered with GP			0.611		
Yes	1	2840			
No	1.2 (0.6 to 2.2)	65			
Work or looking after family makes it difficult to see GP			0.138		
Disagree/strongly disagree	1	1197			
Neither	1.1 (0.8 to 1.5)	455			
Strongly agree/agree	0.7 (0.5 to 1.0)	410			
Not applicable	0.9 (0.6 to 1.3)	247			

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Believe people use ED because they can't get GP appointment			0.541		
Strongly agree/agree	1	2441			
Neither	1.2 (0.9 to 1.6)	339			
Disagree/strongly disagree	1.0 (0.6 to 1.5)	126			
Awareness of services					
Know range of NHS services to use			0.349		
Very confident	1	1436			
Fairly confident	1.0 (0.8 to 1.2)	1189			
Not confident/not at all	1.2 (0.9 to 1.7)	280			
Can find out when NHS services are open			0.875		
Very confident	1	1487			
Fairly confident	1.0 (0.8 to 1.2)	1163			
Not confident/not at all	0.9 (0.6 to 1.3)	255			
Can find out what test available at services			0.520		
Very confident	1	963			
Fairly confident	0.9 (0.8 to 1.2)	1307			
Not confident/not at all	0.9 (0.7 to 1.1)	635			
How to contact GP OOH			0.105		
Very confident	1	1338			
Fairly confident	0.9 (0.7 to 1.1)	1056			
Not very confident	1.2 (0.9 to 1.6)	389			
Not at all confident	0.7 (0.4 to 1.3)	122			
Will look up on the internet to see what to do			0.069		
Very likely	1	428			
Fairly likely	1.0 (0.8 to 1.4)	752			
Not very likely	**1.4 (1.0 to 1.9)**	680			
Not at all	1.0 (0.7 to 1.4)	1016			
Missing		30			
Will look up on the internet to decide what problem is			0.063		
Very likely	1	667			
Fairly likely	**0.7 (0.6 to 0.97)**	797			
Not very likely	1.0 (0.8 to 1.4)	472			
Not at all	0.8 (0.6 to 1.1)	940			
Missing	0.5 (0.1 to 1.5)	30			

continued

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Recursivity					
If tests are done I was right to make contact			0.005		0.05
Disagree/strongly disagree	1	280		1	
Neither	1.4 (0.9 to 2.1)	793		1.2 (0.8 to 1.8)	
Strongly agree/agree	**1.7 (1.2 to 2.6)**	1236		**1.5 (1.0 to 2.3)**	
Missing, self-complete		0			
Health literacy					
Lower health literacy compared with higher health literacy – understand information	1.1 (0.97 to 1.4)	2269	0.108		
Lower health literacy compared with higher health literacy – ability to communicate	1.0 (0.9 to 1.2)	2269	0.884		
Recent use of health care			***0.436***		
Ambulance use					
Never	1	1349			
≥ 12 months	0.9 (0.8 to 1.1)	1108			
< 12 months	1.1 (0.8 to 1.5)	448			
Ambulance frequent user			0.366		
< 3 times	1	2842			
≥ 3 times in 12 months	1.3 (0.7 to 2.4)	64			
ED use			< 0.001		
Never	1	411			
≥ 12 months	1.0 (0.7 to 1.3)	1478			
6–12 months	1.2 (0.8 to 1.8)	366			
3–6 months	**2.0 (1.4 to 3.0)**	234			
< 3 months	1.3 (0.9 to 1.9)	416			
ED frequent user			< 0.001		
< 3 times	1	2738			
≥ 3 times in 12 months	**2.2 (1.6 to 3.2)**	167			
Contacted GP			0.544		
Never	1	65			
≥ 12 months	1.2 (0.6 to 2.6)	454			
6–12 months	1.2 (0.6 to 2.5)	484			
3–6 months	1.4 (0.7 to 2.9)	518			
< 3 months	1.4 (0.7 to 2.9)	1384			

TABLE 22 Variables explaining tendency to attend ED for adults in vignettes (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Attitudes towards overuse of health services					
Too many use 999			0.001		
Strongly agree/agree	1	2516			
Neither	**1.7 (1.3 to 2.2)**	313			
Disagree/strongly disagree	1.4 (0.8 to 2.5)	77			
Too many use ED			< 0.001		< 0.001
Strongly agree/agree	1	2515		1	
Neither	**1.5 (1.1 to 2.1)**	291		**1.4 (1.0 to 2.0)**	
Disagree/strongly disagree	**2.6 (1.7 to 4.0)**	100		**3.1 (1.9 to 5.3)**	
Too many use GP			0.541		
Strongly agree/agree	1	2441			
Neither	1.2 (0.9 to 1.6)	339			
Disagree/strongly disagree	1.0 (0.6 to 1.5)	126			
Reluctance to use ED			0.028		0.012
Strongly agree/agree	1	1348		1	
Neither	**1.4 (1.1 to 1.7)**	734		**1.5 (1.1 to 2.0)**	
Disagree/strongly disagree	1.1 (0.8 to 1.4)	824		**1.3 (1.0 to 1.7)**	

OOH, out of hours.
Bold text denotes 95% CIs that do not contain 1.

TABLE 23 Full model for adult ED

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Sex of respondent(1)	0.031	0.765	0.600	0.976
Respondent: social class [pre-SOC2000] best estimate dv	0.421			
Respondent: social class [pre-SOC2000] best estimate dv(1)	0.122	1.542	0.890	2.670
Respondent: social class [pre-SOC2000] best estimate dv(2)	0.105	1.617	0.904	2.894
Respondent: social class [pre-SOC2000] best estimate dv(3)	0.048	1.836	1.006	3.351
Respondent: social class [pre-SOC2000] best estimate dv(4)	0.176	1.512	0.831	2.750
Respondent: social class [pre-SOC2000] best estimate dv(5)	0.097	2.320	0.860	6.263
IMD_ALL	0.421			
IMD_ALL(1)	0.069	0.701	0.477	1.029
IMD_ALL(2)	0.392	0.846	0.577	1.241

continued

TABLE 23 Full model for adult ED (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
IMD_ALL(3)	0.263	0.806	0.552	1.177
IMD_ALL(4)	0.658	0.919	0.633	1.336
DV To which of these racial groups do you consider you belong? (compressed)(1)	0.020	0.635	0.432	0.932
UrbRur_ALL(1)	0.211	0.828	0.617	1.113
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?	0.558			
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(1)	0.300	1.285	0.799	2.066
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(2)	0.830	0.953	0.617	1.473
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(3)	0.577	0.907	0.643	1.279
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(4)	0.627	0.895	0.572	1.400
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do	0.314			
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(1)	0.066	0.734	0.528	1.020
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(2)	0.355	0.848	0.598	1.202
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(3)	0.522	0.882	0.600	1.296
HPrbDr13	0.047			
HPrbDr13(1)	0.014	1.404	1.071	1.840
HPrbDr13(2)	0.429	1.207	0.757	1.926
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious	0.735			
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(1)	0.233	0.802	0.557	1.153
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(2)	0.215	0.794	0.551	1.144
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(3)	0.589	0.877	0.546	1.411
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(4)	0.400	0.743	0.372	1.483
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D	0.376			
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(1)	0.907	0.978	0.668	1.432
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(2)	0.921	0.981	0.676	1.424

TABLE 23 Full model for adult ED (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(3)	0.120	0.703	0.452	1.096
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(4)	0.590	0.836	0.435	1.605
I think doctors at A&E know more than GPs SC: B, C, D	0.415			
I think doctors at A&E know more than GPs SC: B, C, D(1)	0.643	1.082	0.776	1.507
I think doctors at A&E know more than GPs SC: B, C, D(2)	0.537	0.892	0.620	1.283
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D	0.067			
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(1)	0.057	0.709	0.497	1.011
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(2)	0.023	0.662	0.464	0.945
If a service does tests on me, it shows I was right to go to that service SC: B, C, D	0.155			
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(1)	0.144	0.823	0.634	1.069
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(2)	0.117	0.711	0.464	1.089
I think too many people call 999 for an ambulance when they do not need to	0.038			
I think too many people call 999 for an ambulance when they do not need to(1)	0.018	1.621	1.085	2.423
I think too many people call 999 for an ambulance when they do not need to(2)	0.521	0.779	0.363	1.671
I think too many people use A&E when they do not need to	0.005			
I think too many people use A&E when they do not need to(1)	0.542	1.144	0.743	1.762
I think too many people use A&E when they do not need to(2)	0.001	2.927	1.525	5.616
I think too many people go to their GP when they do not need to	0.727			
I think too many people go to their GP when they do not need to(1)	0.510	1.110	0.814	1.514
I think too many people go to their GP when they do not need to(2)	0.759	0.931	0.592	1.466
Many people are reluctant to use A&E when they have an urgent health problem	0.028			
Many people are reluctant to use A&E when they have an urgent health problem(1)	0.019	1.420	1.059	1.905
Many people are reluctant to use A&E when they have an urgent health problem(2)	0.033	1.356	1.024	1.795
Constant	0.038	0.398		

TABLE 24 Variables explaining tendency to attend ED for children in vignettes

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Sociodemographic characteristics					
Age (years)			< 0.001		< 0.001
18–24	1	169		1	
25–34	1.0 (0.6 to 1.4)	384		0.9 (0.6 to 1.5)	
35–44	1.0 (0.6 to 1.4)	467		1.1 (0.7 to 1.7)	
45–54	1.4 (0.9 to 2.1)	469		**1.6 (1.0 to 2.5)**	
55–64	**1.7 (1.1 to 2.4)**	508		**1.9 (1.2 to 3.0)**	
65–74	**1.6 (1.1 to 2.3)**	499		**1.7 (1.1 to 2.7)**	
≥ 75	1.1 (0.7 to 1.6)	405		1.1 (0.7 to 1.8)	
Sex			0.002		0.007
Female	1	1649		**1**	
Male	**1.3 (1.1 to 1.5)**	1257		**1.3 (1.1 to 1.5)**	
Ethnicity			0.038		0.003
White	1	2572		1	
BAME	**1.3 (1.0 to 1.6)**	334		**1.6 (1.2 to 2.3)**	
Social class			0.072		
I	1	214			
II	1.0 (0.7 to 1.4)	1039			
III non-manual	0.9 (0.6 to 1.3)	569			
III manual	1.3 (0.9 to 1.8)	416			
IV and V	1.2 (0.9 to 1.7)	524			
Armed forces	1.0 (0.5 to 1.8)	52			
Deprivation			0.357		
5 (affluent)	1	611			
4	1.2 (0.9 to 1.5)	638			
3	1.0 (0.8 to 1.3)	536			
2	1.0 (0.8 to 1.3)	545			
1 (most deprived)	1.2 (0.9 to 1.5)	576			
Rurality			0.988		
Rural	1	665			
Urban	1.0 (0.8 to 1.2)	2241			
Region			< 0.001		< 0.001
North England	1	474		1	
Midlands	1.1 (0.9 to 1.4)	794		1.1 (0.9 to 1.5)	
South England	1.0 (0.8 to 1.2)	957		1.0 (0.7 to 1.2)	
London	1.0 (0.7 to 1.4)	285		0.8 (0.5 to 1.1)	

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Wales	**2.0 (1.3 to 2.9)**	132		**1.9 (1.2 to 3.0)**	
Scotland	**1.7 (1.2 to 2.3)**	264		**1.7 (1.2 to 2.4)**	
In household with children aged < 5 years old			0.01		
No	1	2591			
Yes	**0.7 (0.5 to 0.9)**	300			
Resources available					
Car ownership	1		0.652		
≥ 1 cars	0.9 (0.7 to 1.1)	1478			
No car	1.0 (0.8 to 1.2)	428			
Missing	1	1000			
Personal access to the internet			0.643		
Yes	1	2542			
No	0.9 (0.7 to 1.2)	364			
Health			***0.378***		
General health					
Excellent	1	223			
Very good	1.1 (0.8 to 1.5)	725			
Good	1.0 (0.7 to 1.3)	799			
Fair	1.2 (0.8 to 1.7)	360			
Poor	1.3 (0.8 to 2.0)	163			
Can't choose	0.7 (0.3 to 1.6)	39			
Missing/not included	1	597			
Long-term limiting illness			0.129		
None	1	1766			
Non-limiting	1.1 (0.9 to 1.4)	586			
Limiting	1.2 (0.99 to 1.5)	541			
Don't know	0.4 (0.1 to 1.8)	13			
Programme theories *1, Risk: uncertainty causes anxiety*					
Worry pain is a sign of something serious			0.998		
Not likely at all	1	358			
Not likely	1.0 (0.8 to 1.3)	1138			
Fairly likely	1.0 (0.8 to 1.3)	876			
Very likely	1.0 (0.8 to 1.4)	415			
It depends	1.0 (0.6 to 1.5)	119			

continued

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Confident in deciding to see a doctor or self-care			0.381		
Very confident	1	993			
Fairly	1.0 (0.9 to 1.2)	1130			
Not very	1.4 (0.9 to 2.2)	89			
Never had problem	1.2 (0.8 to 1.9)	97			
2, Risk: previous traumatic event					
Had problem, did not see doctor and was serious			0.029		
No	1	2219			
Yes	**1.2 (1.0 to 1.5)**	687			
3, Risk: responsibility for others					
4, Speed: need to get back to normal					
Sleep			0.007		
Do not see doctor	1	2010			
See doctor if sleep loss	**1.3 (1.1 to 1.6)**	634			
See doctor if any loss	0.9 (0.7 to 1.3)	262			
Work			0.045		
Do not see doctor	1	935			
See doctor if work loss	**1.2 (1.0 to 1.5)**	1709			
See doctor if any loss	1.0 (0.7 to 1.4)	262			
5, Speed: need to seek pain relief					
Likely to take medication			0.043		
Very likely	1	1081			
Fairly	**0.8 (0.7 to 0.95)**	1257			
Not very	**0.7 (0.5 to 0.9)**	376			
Not at all	0.9 (0.6 to 1.3)	135			
Depends	0.8 (0.5 to 1.5)	57			
6, Speed: waited long enough					
7a, Stressful lives					
Overwhelmed when have health problem			0.367		
Strongly disagree	1	487			
Disagree	0.9 (0.7 to 1.1)	872			
Neither	1.1 (0.8 to 1.4)	537			
Strongly agree/agree	0.9 (0.7 to 1.2)	314			
Never had problem	1.3 (0.8 to 2.0)	99			

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Find life stressful			0.770		
No	1	637			
A bit	1.0 (0.8 to 1.2)	1316			
Quite	0.9 (0.7 to 1.2)	637			
Very	0.9 (0.7 to 1.2)	297			
Don't know	0.5 (0.2 to 1.6)	19			
Someone to care for them if they are ill			0.979		
Definitely	1	1240			
Probably	1.0 (0.8 to 1.2)	697			
Probably not	1.0 (0.8 to 1.4)	280			
Don't know	0.9 (0.6 to 1.5)	92			
Can take time off work for GP			0.627		
Yes	1	1078			
Yes but not easy	1.0 (0.8 to 1.3)	275			
No	0.8 (0.6 to 1.3)	127			
Not applicable/missing	1.1 (0.9 to 1.3)	1426			
7b, Low burden					
Travel to ED			0.554		
Very difficult	1	610			
Neither	0.9 (0.7 to 1.2)	269			
Fairly easy	0.9 (0.7 to 1.1)	1172			
Very easy	0.9 (0.7 to 1.1)	855			
Opening hours a problem			0.084		
Disagree/strongly disagree	1	1098			
Neither	**1.3 (1.0 to 1.6)**	608			
Strongly agree/agree	1.0 (0.8 to 1.3)	603			
Prefer no appointments			0.005		
Disagree/strongly disagree	1	685			
Neither	1.2 (0.9 to 1.4)	799			
Strongly agree/agree	**1.4 (1.1 to 1.8)**	825			
Want convenient times			0.847		
Disagree/strongly disagree	1	253			
Neither	1.1 (0.7 to 1.4)	708			
Strongly agree/agree	1.0 (0.7 to 1.3)	1348			

continued

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Willing to wait in waiting room			< 0.001		0.029
Disagree/strongly disagree	1	361		1	
Neither	0.7 (0.5 to 1.1)	194		0.8 (0.5 to 1.2)	
Strongly agree/agree	**1.4 (1.1 to 1.8)**	**2351**		1.3 (0.96 to 1.7)	
8, Compliance with family/friends					
Check with family and friends for what to do			0.171		
Not very likely	1	545			
Not likely	0.9 (0.7 to 1.2)	746			
Fairly likely	0.8 (0.6 to 1.0)	1061			
Very likely	0.9 (0.7 to 1.1)	554			
9, Views of services					
Prefer ED for quick tests			0.001		0.003
Disagree/strongly disagree	1	1159		1	
Neither	**1.2 (1.0 to 1.5)**	797		1.2 (0.99 to 1.5)	
Strongly agree/agree	**1.6 (1.2 to 2.0)**	353		**1.5 (1.2 to 2.0)**	
Missing, self-complete		0			
Doctors know more at ED			0.118		
Disagree/strongly disagree	1	850			
Neither	1.2 (0.99 to 1.5)	1041			
Strongly agree/agree	1.2 (0.96 to 1.6)	418			
Missing, self-complete		0			
No confidence in GP			0.847		
Strongly disagree	1	538			
Disagree	0.9 (0.7 to 1.1)	1008			
Neither	0.9 (0.7 to 1.1)	446			
Agree	0.9 (0.6 to 1.3)	165			
Strongly agree	1.0 (0.6 to 1.6)	76			
Don't know	0.7 (0.4 to 1.5)	42			
Missing	0.8 (0.4 to 1.6)	34			
Missing, self-complete		0			
10, Frustration with access to GP					
Hard to get GP appointment			0.905		
Disagree/strongly disagree	1	819			
Neither	1.0 (0.7 to 1.3)	353			
Strongly agree/agree	1.0 (0.9 to 1.2)	1137			
Missing, self-complete		0			

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Registered with GP			0.320		
Yes	1	2840			
No	1.3 (0.8 to 2.1)	65			
Work or looking after family makes it difficult to see GP			0.795		
Disagree/strongly disagree	1	1197			
Neither	1.1 (0.9 to 1.4)	455			
Strongly agree/agree	1.0 (0.8 to 1.3)	410			
Not applicable	1.0 (0.7 to 1.3)	247			
Believe people use ED because can't get GP appointment			0.328		
Strongly agree/agree	1	2441			
Neither	0.8 (0.6 to 1.1)	339			
Disagree/strongly disagree	0.9 (0.6 to 1.4)	126			
Awareness of services					
Know range of NHS services to use			0.978		
Very confident	1	1436			
Fairly confident	1.0 (0.9 to 1.2)	1189			
Not confident/not at all	1.0 (0.7 to 1.3)	280			
Can find out when NHS services are open			0.761		
Very confident	1	1487			
Fairly confident	1.0 (0.9 to 1.2)	1163			
Not confident/not at all	1.1 (0.8 to 1.5)	255			
Can find out what tests available at services			0.402		
Very confident	1	963			
Fairly confident	0.9 (0.8 to 1.1)	1307			
Not confident/not at all	1.0 (0.8 to 1.2)	635			
How to contact GP OOH			0.837		
Very confident	1	1338			
Fairly confident	1.0 (0.8 to 1.2)	1056			
Not very confident	1.1 (0.9 to 1.4)	389			
Not at all confident	1.0 (0.7 to 1.5)	122			
Will look up on the internet to see what to do			0.003		
Very likely	1	428			
Fairly likely	0.8 (0.7 to 1.1)	752			
Not very likely	1.2 (0.9 to 1.5)	680			

continued

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Not at all	1.1 (0.9 to 1.4)	1016			
Missing	**0.3 (0.1 to 0.9)**	30			
Will look up on the internet to decide what problem is			0.143		
Very likely	1	667			
Fairly likely	0.9 (0.7 to 1.1)	797			
Not very likely	1.1 (0.8 to 1.4)	472			
Not at all	1.1 (0.9 to 1.3)	940			
Missing	0.4 (0.2 to 1.1)	30			
Recursivity					
If tests are done I was right to make contact			0.037		
Disagree/strongly disagree	1	280			
Neither	1.1 (0.8 to 1.5)	793			
Strongly agree/agree	**1.3 (0.99 to 1.8)**	1236			
Missing, self-complete		0			
Health literacy					
Lower health literacy compared with higher health literacy – understand information	0.9 (0.8 to 1.1)	2269	0.469		
Lower health literacy compared with higher health literacy – ability to communicate	0.9 (0.8 to 1.1)	2269	0.332		
Recent use of health care					
Ambulance use			0.781		
Never	1	1349			
≥ 12 months	1.1 (0.9 to 1.2)	1108			
< 12 months	1.1 (0.9 to 1.3)	448			
Ambulance frequent user			0.429		
< 3 times	1	2842			
≥ 3 times in 12 months	0.8 (0.5 to 1.4)	64			
ED use			0.027		
Never	1	411			
≥ 12 months	**1.3 (1.0 to 1.6)**	1478			
6–12 months	1.3 (0.96 to 1.8)	366			
3–6 months	1.3 (0.9 to 1.9)	234			
< 3 months	**1.6 (1.2 to 2.2)**	416			
ED frequent user			0.278		
< 3 times	1	1959			
≥ 3 times in 12 months	1.2 (0.9 to 1.7)	949			

TABLE 24 Variables explaining tendency to attend ED for children in vignettes (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Contacted GP			0.322		
Never	1	65			
≥ 12 months	1.7 (0.9 to 3.1)	454			
6–12 months	1.5 (0.8 to 2.7)	484			
3–6 months	1.7 (0.95 to 3.2)	518			
< 3 months	1.6 (0.9 to 2.9)	1384			
Attitudes towards overuse of health services					
Too many use 999			0.126		
Strongly agree/agree	1	2516			
Neither	**1.3 (1.0 to 1.6)**	313			
Disagree/strongly disagree	1.2 (0.8 to 2.0)	77			
Too many use ED			0.038		
Strongly agree/agree	1	2515			
Neither	**1.3 (1.0 to 1.7)**	291			
Disagree/strongly disagree	1.3 (0.9 to 2.0)	100			
Too many use GP			0.890		
Strongly agree/agree	1	2082			
Neither	1.0 (0.9 to 1.3)	577			
Disagree/strongly disagree	1.0 (0.7 to 1.3)	247			
Reluctance to use ED			0.495		
Strongly agree/agree	1	1348			
Neither	1.1 (0.9 to 1.3)	734			
Disagree/strongly disagree	1.1 (0.9 to 1.4)	824			

OOH, out of hours.
Bold text denotes 95% CIs that do not contain 1.

TABLE 25 Full model for child ED

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Age of respondent(grouped) < 7 category > dv	0.000			
Age of respondent(grouped) < 7 category > dv(1)	0.905	0.970	0.590	1.595
Age of respondent(grouped) < 7 category > dv(2)	0.641	1.119	0.697	1.796
Age of respondent(grouped) < 7 category > dv(3)	0.028	1.671	1.056	2.645
Age of respondent(grouped) < 7 category > dv(4)	0.002	2.038	1.291	3.218
Age of respondent(grouped) < 7 category > dv(5)	0.008	1.873	1.179	2.975

continued

TABLE 25 Full model for child ED (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Age of respondent(grouped) < 7 category > dv(6)	0.378	1.251	0.760	2.060
Sex of respondent(1)	0.019	0.801	0.666	0.964
DV To which of these racial groups do you consider you belong? (compressed)(1)	0.003	1.656	1.181	2.321
2007 version: Government office region	0.001			
2007 version: Government office region(1)	0.299	1.164	0.874	1.549
2007 version: Government office region(2)	0.782	0.962	0.729	1.268
2007 version: Government office region(3)	0.293	0.804	0.536	1.207
2007 version: Government office region(4)	0.006	1.883	1.195	2.968
2007 version: Government office region(5)	0.006	1.684	1.163	2.438
Number of Respondents children in HH aged 0–4yrs – dv(1)	0.816	0.957	0.661	1.386
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?	0.232			
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(1)	0.533	0.881	0.592	1.312
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(2)	0.466	0.879	0.622	1.242
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(3)	0.180	0.831	0.634	1.089
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(4)	0.020	0.654	0.457	0.937
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do	0.047			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(1)	0.118	0.781	0.574	1.064
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(2)	0.599	1.086	0.799	1.474
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(3)	0.810	0.964	0.713	1.303
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(4)	0.068	0.234	0.049	1.115
Have you ever had a health problem where you did not go to see a doctor at first and it turned out to be serious?(1)	0.273	0.888	0.719	1.098
HPrbDr13	0.154			
HPrbDr13(1)	0.091	1.194	0.972	1.467
HPrbDr13(2)	0.830	0.960	0.658	1.399
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain	0.182			
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(1)	0.281	0.893	0.728	1.097

TABLE 25 Full model for child ED (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
For unexpected non-life-threatening g pain, how likely is it you would … take medication to stop the pain(2)	0.016	0.689	0.509	0.934
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(3)	0.447	0.836	0.528	1.325
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(4)	0.785	1.104	0.542	2.246
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious	0.563			
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(1)	0.178	1.231	0.910	1.665
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(2)	0.248	1.190	0.886	1.599
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(3)	0.321	1.209	0.831	1.761
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(4)	0.132	1.522	0.881	2.629
I prefer NHS services where I don't need to make an appointment SC: B, C, D	0.348			
I prefer NHS services where I don't need to make an appointment SC: B, C, D(1)	0.312	0.891	0.713	1.114
I prefer NHS services where I don't need to make an appointment SC: B, C, D(2)	0.164	0.845	0.666	1.071
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day	0.096			
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(1)	0.055	0.660	0.432	1.010
For unexpected non-life-threatening health problem... I'm willing to wait a few hours in a waiting room if it means I can be seen that day(2)	0.233	0.837	0.625	1.121
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D	0.019			
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(1)	0.210	0.835	0.631	1.106
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(2)	0.008	0.690	0.525	0.907
If a service does tests on me, it shows I was right to go to that service SC: B, C, D	0.438			
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(1)	0.199	0.872	0.708	1.075
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(2)	0.730	0.947	0.695	1.290
I think too many people use A&E when they do not need to	0.047			
I think too many people use A&E when they do not need to(1)	0.023	1.433	1.052	1.952
I think too many people use A&E when they do not need to(2)	0.257	1.358	0.800	2.306
Constant	0.090	0.561		

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a]

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Sociodemographic characteristics					
Age (years)			0.001		< 0.001
18–24	1	169		1	
25–34	0.8 (0.6 to 1.2)	384		0.8 (0.5 to 1.2)	
35–44	0.8 (0.6 to 1.2)	467		0.9 (0.6 to 1.4)	
45–54	1.2 (0.8 to 1.7)	469		1.3 (0.9 to 2.0)	
55–64	1.3 (0.9 to 1.8)	508		1.4 (0.9 to 2.1)	
65–74	1.3 (0.9 to 1.8)	499		1.4 (0.9 to 2.1)	
≥ 75	0.9 (0.6 to 1.3)	405		1.0 (0.6 to 1.5)	
Sex			< 0.001		0.001
Female	1	1649		1	
Male	**1.4 (1.2 to 1.6)**	1257		**1.4 (1.1 to 1.6)**	
Ethnicity			0.001		0.005
White	1	2572		1	
BAME	1.5 (1.2 to 1.8)	334		**1.5 (1.1 to 2.0)**	
Social class			0.027		
I	1	214			
II	1.2 (0.8 to 1.6)	1039			
III non-manual	1.2 (0.9 to 1.6)	569			
III manual	**1.6 (1.1 to 2.2)**	416			
IV and V	**1.5 (1.1 to 2.1)**	524			
Armed forces	1.3 (0.7 to 2.4)	52			
Deprivation			0.183		
5 (affluent)					
4					
3					
2					
1 (most deprived)					
Rurality			0.201		
Rural					
Urban					
Region			0.001		< 0.001
North England	1	474		1	
Midlands	0.9 (0.7 to 1.2)	794		0.9 (0.7 to 1.2)	
South England	0.8 (0.7 to 1.0)	957		0.8 (0.6 to 1.0)	

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
London	1.0 (0.7 to 1.3)	285		0.8 (0.5 to 1.1)	
Wales	**1.6 (1.1 to 2.3)**	132		**1.6 (1.0 to 2.5)**	
Scotland	**1.4 (1.0 to 1.9)**	264		1.4 (0.95 to 1.9)	
In household with children aged < 5 years old			0.041		
No	1	2591			
Yes	**0.8 (0.6 to 0.99)**	300			
Resources available					
Car ownership			0.424		
≥ 1 cars					
No car					
Missing					
Personal access to the internet			0.706		
Yes					
No					
Health					
General health			0.489		
Excellent					
Very good					
Good					
Fair					
Poor					
Can't choose					
Missing/not included					
Long-term limiting illness			0.075		
None					
Non-limiting					
Limiting					
Don't know					
Programme theories *1, Risk: uncertainty causes anxiety*					
Worry pain is a sign of something serious			0.071		
Not likely at all					
Not likely					
Fairly likely					
Very likely					
It depends					

continued

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Confident in deciding to see a doctor or self-care			0.316		
Very confident					
Fairly					
Not very					
Never had problem					
2, Risk: previous traumatic event					
Had problem, did not see doctor and was serious			0.170		
No					
Yes					
3, Risk: responsibility for others					
4, Speed: need to get back to normal					
Sleep			< 0.001		
Do not see doctor	1	2010			
See doctor if sleep loss	**1.5 (1.3 to 1.8)**	634			
See doctor if any loss	1.2 (0.9 to 1.5)	262			
Work			0.002		0.04
Do not see doctor	1	935		1	
See doctor if work loss	**1.3 (1.1 to 1.6)**	1709		**1.3 (1.0 to 1.5)**	
See doctor if any loss	**1.3 (1.0 to 1.7)**	262		1.1 (0.8 to 1.6)	
5, Speed: need to seek pain relief					
Likely to take medication			0.050		
Very likely	1	1081			
Fairly	**0.8 (0.7 to 0.95)**	1257			
Not very	**0.8 (0.6 to 0.97)**	376			
Not at all	0.8 (0.6 to 1.1)	135			
Depends	0.7 (0.4 to 1.2)	57			
6, Speed: waited long enough					
7a, Stressful lives					
Overwhelmed when have health problem			0.263		
Strongly disagree					
Disagree					
Neither					
Strongly agree/agree					
Never had problem					

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Find life stressful			0.286		
No					
A bit					
Quite					
Very					
Don't know					
Someone to care for them if they are ill			0.374		
Definitely					
Probably					
Probably not					
Don't know					
Can take time off work for GP			0.281		
Yes					
Yes but not easy					
No					
Not applicable/missing					
7b, Low burden					
Travel to ED			0.521		
Very difficult					
Neither					
Fairly easy					
Very easy					
Opening hours a problem			0.143		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Prefer no appointments			0.005		
Disagree/strongly disagree	1	685			
Neither	1.2 (0.9 to 1.4)	799			
Strongly agree/agree	**1.4 (1.1 to 1.7)**	825			
Want convenient times			0.875		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					

continued

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Willing to wait in waiting room			< 0.001		0.012
Disagree/strongly disagree	1	361		1	
Neither	0.7 (0.5 to 1.0)	194		0.7 (0.4 to 1.1)	
Strongly agree/agree	**1.3 (1.1 to 1.7)**	2351		1.2 (0.9 to 1.5)	
8, Compliance with family/friends					
Check with family and friends for what to do			0.112		
Not very likely					
Not likely					
Fairly likely					
Very likely					
9, Views of services					
Prefer ED for quick tests			< 0.001		< 0.001
Disagree/strongly disagree	1	1159		1	
Neither	**1.3 (1.1 to 1.6)**	797		**1.3 (1.0 to 1.5)**	
Strongly agree/agree	**1.8 (1.4 to 2.3)**	353		**1.7 (1.4 to 2.2)**	
Missing, self-complete		0			
Doctors know more at ED			0.029		
Disagree/strongly disagree	1	850			
Neither	1.2 (1.0 to 1.5)	1041			
Strongly agree/agree	1.3 (1.0 to 1.7)	418			
Missing, self-complete		0			
No confidence in GP			0.925		
Strongly disagree					
Disagree					
Neither					
Agree					
Strongly agree					
Don't know					
Missing					
Missing, self-complete					
10, Frustration with access to GP					
Hard to get GP appointment			0.994		
Disagree/strongly disagree					
Neither					

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Strongly agree/agree					
Missing, self-complete		0			
Registered with GP			0.958		
Yes					
No					
Work or looking after family makes it difficult to see GP			0.246		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Not applicable					
Believe people use ED because can't get GP appointment			0.710		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					
Awareness of services			***0.887***		
Know range of NHS services to use					
Very confident					
Fairly confident					
Not confident/not at all					
Can find out when NHS services are open			0.825		
Very confident					
Fairly confident					
Not confident/not at all					
Can find out what tests available at services			0.483		
Very confident					
Fairly confident					
Not confident/not at all					
How to contact GP OOH			0.546		
Very					
Fairly					
Not very confident					
Not at all					

continued

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Will look up on the internet to see what to do			0.001		
Very likely	1	428			
Fairly likely	0.8 (0.7 to 1.1)	752			
Not very likely	1.1 (0.9 to 1.5)	680			
Not at all	1.0 (0.8 to 1.3)	1016			
Missing	**0.3 (0.1 to 0.9)**	30			
Will look up on the internet to decide what problem is			0.035		
Very likely	1	667			
Fairly likely	0.8 (0.7 to 1.0)	797			
Not very likely	1.1 (0.8 to 1.3)	472			
Not at all	1.0 (0.8 to 1.2)	940			
Missing	**0.4 (0.2 to 0.9)**	30			
Recursivity					
If tests are done I was right to make contact			0.002		
Disagree/strongly disagree	1	280			
Neither	1.1 (0.9 to 1.5)	793			
Strongly agree/agree	**1.5 (1.1 to 1.9)**	1236			
Missing, self-complete		0			
Health literacy					
Lower health literacy compared with higher health literacy – understand information			0.995		
Lower health literacy compared with higher health literacy – ability to communicate			0.291		
Recent use of health care					
Ambulance use			0.473		
Never					
≥ 12 months					
< 12 months					
Ambulance frequent user			0.755		
< 3 times					
≥ 3 times in 12 months					
ED use			0.009		
Never	1	411			
≥ 12 months	1.2 (0.97 to 1.5)	416			

TABLE 26 Variables explaining tendency to attend ED for all in vignettes[a] (*continued*)

Variable	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
6–12 months	1.3 (0.99 to 1.8)	234			
3–6 months	**1.6 (1.2 to 2.3)**	366			
< 3 months	**1.5 (1.2 to 2.0)**	1478			
ED frequent user			0.001		
< 3 times	1	2738			
≥ 3 times in 12 months	**1.7 (1.3 to 2.4)**	167			
Contacted GP			0.345		
Never					
≥ 12 months					
6–12 months					
3–6 months					
< 3 months					
Attitudes towards overuse of health services					
Too many use 999			0.039		
Strongly agree/agree	1	2516			
Neither	**1.3 (1.1 to 1.7)**	313			
Disagree/strongly disagree	1.2 (0.8 to 1.9)	77			
Too many use ED			0.003		0.003
Strongly agree/agree	1	2515		1	
Neither	**1.4 (1.1 to 1.8)**	291		**1.4 (1.0 to 1.9)**	
Disagree/strongly disagree	**1.6 (1.1 to 2.5)**	100		**2.0 (1.2 to 3.4)**	
Too many use GP			0.357		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					
Reluctance to use ED			0.236		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					

OOH, out of hours.
a Completed only where $p < 0.05$.
Bold text denotes 95% CIs that do not contain 1.

TABLE 27 Full model for ED all

Variables	Significance	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Age of respondent(grouped) < 7 category > dv	0.002			
Age of respondent(grouped) < 7 category > dv(1)	0.387	0.802	0.486	1.322
Age of respondent(grouped) < 7 category > dv(2)	0.658	0.897	0.554	1.452
Age of respondent(grouped) < 7 category > dv(3)	0.172	1.389	0.867	2.224
Age of respondent(grouped) < 7 category > dv(4)	0.155	1.407	0.879	2.252
Age of respondent(grouped) < 7 category > dv(5)	0.169	1.395	0.868	2.242
Age of respondent(grouped) < 7 category > dv(6)	0.877	0.961	0.580	1.593
Sex of respondent(1)	0.003	0.754	0.625	0.910
Respondent: social class [pre-SOC2000] best estimate dv	0.430			
Respondent: social class [pre-SOC2000] best estimate dv(1)	0.676	1.081	0.752	1.554
Respondent: social class [pre-SOC2000] best estimate dv(2)	0.369	1.196	0.809	1.769
Respondent: social class [pre-SOC2000] best estimate dv(3)	0.169	1.337	0.884	2.021
Respondent: social class [pre-SOC2000] best estimate dv(4)	0.136	1.357	0.909	2.027
Respondent: social class [pre-SOC2000] best estimate dv(5)	0.884	1.062	0.471	2.395
DV To which of these racial groups do you consider you belong? (compressed)(1)	0.014	1.536	1.091	2.161
2007 version: Government office region	0.004			
2007 version: Government office region(1)	0.515	0.913	0.694	1.201
2007 version: Government office region(2)	0.127	0.814	0.625	1.060
2007 version: Government office region(3)	0.809	0.954	0.652	1.397
2007 version: Government office region(4)	0.046	1.586	1.009	2.493
2007 version: Government office region(5)	0.068	1.411	0.975	2.041
Number of Respondents children in HH aged 0–4yrs – dv(1)	0.756	0.946	0.666	1.343
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?	0.323			
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(1)	0.720	1.073	0.729	1.581
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(2)	0.591	0.912	0.651	1.277
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(3)	0.381	0.888	0.682	1.158
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(4)	0.071	0.726	0.513	1.028
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be	0.844			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(1)	0.400	0.871	0.630	1.202
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(2)	0.375	0.840	0.570	1.236
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(3)	0.561	0.867	0.536	1.403

TABLE 27 Full model for ED all (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B) Lower	Upper
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(4)	0.600	1.703	0.233	12.435
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do	0.138			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(1)	0.726	0.937	0.649	1.351
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(2)	0.198	1.298	0.873	1.929
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(3)	0.622	1.137	0.683	1.892
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(4)	0.199	0.251	0.030	2.072
HPrbDr13	0.080			
HPrbDr13(1)	0.028	1.250	1.024	1.526
HPrbDr13(2)	0.702	1.074	0.745	1.549
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain	0.538			
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(1)	0.154	0.865	0.708	1.056
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(2)	0.180	0.823	0.618	1.094
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(3)	0.425	0.837	0.542	1.295
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(4)	0.884	1.052	0.535	2.065
I prefer NHS services where I don't need to make an appointment SC: B, C, D	0.560			
I prefer NHS services where I don't need to make an appointment SC: B, C, D(1)	0.420	0.914	0.734	1.138
I prefer NHS services where I don't need to make an appointment SC: B, C, D(2)	0.314	0.888	0.705	1.119
For unexpected non-life threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day	0.061			
For unexpected non-life threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(1)	0.021	0.615	0.406	0.930
For unexpected non-life threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(2)	0.447	0.899	0.683	1.183
I think doctors at A&E know more than GPs SC: B, C, D	0.791			
I think doctors at A&E know more than GPs SC: B, C, D(1)	0.590	1.075	0.827	1.397
I think doctors at A&E know more than GPs SC: B, C, D(2)	0.499	1.102	0.832	1.458
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D	0.002			
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(1)	0.048	0.744	0.556	0.997
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(2)	0.000	0.594	0.444	0.795

continued

TABLE 27 Full model for ED all (*continued*)

Variables	Significance	Exp(B)	95% CI for Exp(B) Lower	Upper
If a service does tests on me, it shows I was right to go to that service SC: B, C, D	0.210			
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(1)	0.103	0.844	0.689	1.035
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(2)	0.254	0.839	0.621	1.134
I think too many people call 999 for an ambulance when they do not need to	0.121			
I think too many people call 999 for an ambulance when they do not need to(1)	0.048	1.407	1.003	1.974
I think too many people call 999 for an ambulance when they do not need to(2)	0.774	0.915	0.498	1.680
I think too many people use A&E when they do not need to	0.057			
I think too many people use A&E when they do not need to(1)	0.164	1.277	0.905	1.802
I think too many people use A&E when they do not need to(2)	0.033	1.865	1.050	3.312
Constant	0.929	1.033		

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a]

Variables	Univariate Odds ratio (95% CI)	*n*	*p*-value	Final multivariable model Odds ratio (95% CI)	*p*-value
Sociodemographic characteristics					
Age (years)			< 0.001		< 0.001
18–24	1	169		1	
25–34	1.0 (0.7 to 1.5)	384		1.0 (0.6 to 1.5)	
35–44	1.0 (0.7 to 1.5)	467		0.9 (0.6 to 1.4)	
45–54	0.9 (0.6 to 1.3)	469		0.8 (0.5 to 1.3)	
55–64	1.1 (0.8 to 1.7)	508		1.3 (0.8 to 2.0)	
65–74	**1.5 (1.0 to 2.1)**	499		1.3 (0.8 to 2.0)	
≥ 75	**1.9 (1.3 to 2.8)**	405		1.8 (1.1 to 2.9)	
Sex	0.09				
Female					
Male					
Ethnicity			< 0.001		< 0.001
White	1	2572		1	
BAME	**1.6 (1.3 to 2.1)**	**334**		**2.1 (1.5 to 2.9)**	

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Social class			0.302		
I					
II					
III non-manual					
III manual					
IV and V					
Armed forces					
Deprivation			0.571		
5 (affluent)					
4					
3					
2					
1 (most deprived)					
Rurality			0.784		
Rural					
Urban					
Region			0.010		0.026
North England	1	474		1	
Midlands	1.1 (0.8 to 1.4)	794		1.1 (0.8 to 1.4)	
South England	**1.3 (1.0 to 1.6)**	957		**1.4 (1.0 to 1.8)**	
London	**1.5 (1.1 to 1.0)**	285		1.3 (0.9 to 1.9)	
Wales	**1.5 (1.0 to 2.3)**	132		**1.7 (1.0 to 2.7)**	
Scotland	**1.5 (1.1 to 2.1)**	264		**1.7 (1.1 to 2.4)**	
In household with children aged < 5 years old			0.341		
No					
Yes					
Resources available					
Car ownership			0.010		
≥ 1 cars	1	1478			
No car	**1.4 (1.1 to 1.8)**	428			
Missing	1.1 (0.9 to 1.3)	1000			
Personal access to the internet			< 0.001		
Yes	1	2542			
No	**1.7 (1.3 to 2.1)**	364			

continued

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Health					
General health			0.003		
Excellent	1	223			
Very good	1.0 (0.7 to 1.4)	725			
Good	1.3 (0.9 to 1.8)	799			
Fair	**1.4 (1.0 to 2.0)**	360			
Poor	**1.8 (1.2 to 2.8)**	163			
Can't choose	**2.4 (1.2 to 4.7)**	39			
Missing/not included	1	597			
Long-term limiting illness			0.032		
None	1	1766			
Non-limiting	1.0 (0.8 to 1.2)	586			
Limiting	**1.3 (1.1 to 1.6)**	541			
Don't know	1.3 (0.4 to 4.1)	13			
Programme theories					
1, Risk: uncertainty causes anxiety					
Worry pain is a sign of something serious			< 0.001		< 0.001
Not likely at all	1	358		1	
Not likely	**1.4 (1.0 to 1.8)**	1138		1.3 (0.9 to 1.8)	
Fairly likely	**1.9 (1.5 to 2.6)**	876		**1.8 (1.3 to 2.5)**	
Very likely	**2.8 (2.1 to 3.9)**	415		**2.0 (1.4 to 3.0)**	
It depends	1.2 (0.8 to 2.0)	119		1.2 (0.6 to 2.1)	
Confident in deciding to see a doctor or self-care			0.029		
Very confident	1	993			
Fairly	**1.2 (1.0 to 1.4)**	1130			
Not very	1.2 (0.8 to 1.9)	89			
Never had problem	**1.8 (1.2 to 2.8)**	97			
2, Risk: previous traumatic event					
Had problem, did not see doctor and was serious			0.767		
No					
Yes					
3, Risk: responsibility for others					
4, Speed: need to get back to normal					
Sleep			< 0.001		
Do not see doctor	1	2010			
See doctor if sleep loss	**1.7 (1.4 to 2.0)**	634			
See doctor if any loss	**2.2 (1.7 to 2.8)**	262			

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Work			< 0.001		
Do not see doctor	1	935			
See doctor if work loss	**1.2 (1.0 to 1.4)**	1709			
See doctor if any loss	**2.2 (1.6 to 2.9)**	262			
5, Speed: need to seek pain relief					
Likely to take medication			0.006		
Very likely	1	1081			
Fairly	0.9 (0.8 to 1.1)	1257			
Not very	**0.7 (0.5 to 0.9)**	376			
Not at all	**0.6 (0.4 to 0.9)**	135			
Depends	0.9 (0.5 to 1.6)	57			
6, Speed: waited long enough					
7a, Stressful lives					
Overwhelmed when have health problem			< 0.001		0.012
Strongly disagree	1	487		1	
Disagree	**1.5 (1.2 to 2.0)**	872		1.3 (0.97 to 1.6)	
Neither	**2.2 (1.7 to 2.9)**	537		**1.7 (1.2 to 2.2)**	
Strongly agree/agree	**2.0 (1.5 to 2.8)**	314		1.4 (0.96 to 1.9)	
Never had problem	**2.1 (1.3 to 3.3)**	99		**1.7 (1.0 to 2.8)**	
Find life stressful			0.055		
No					
A bit					
Quite					
Very					
Don't know					
Someone to care for them if they are ill			0.257		
Definitely					
Probably					
Probably not					
Don't know					
Can take time off work for GP			< 0.001		
Yes	1	1078			
Yes but not easy	0.8 (0.6 to 1.1)	275			
No	0.7 (0.4 to 1.1)	127			
Not applicable/missing	**1.6 (1.3 to 1.8)**	1426			

continued

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
7b, Low burden					
Travel to ED			< 0.001		
Very difficult	1	620			
Neither	1.0 (0.7 to 1.3)	269			
Fairly easy	**0.8 (0.6 to 0.97)**	1172			
Very easy	**0.6 (0.4 to 0.7)**	855			
Opening hours a problem			0.423		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Prefer no appointments			0.017		
Disagree/strongly disagree	1	685			
Neither	1.1 (0.9 to 1.4)	799			
Strongly agree/agree	**1.4 (1.1 to 1.7)**	825			
Want convenient times			0.549		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Willing to wait in waiting room			< 0.001		
Disagree/strongly disagree	1	361			
Neither	1.4 (0.97 to 2.1)	194			
Strongly agree/agree	**1.7 (1.3 to 2.2)**	2351			
8, Compliance with family/friends					
Check with family and friends for what to do			< 0.001		
Not very likely	1	545			
Not likely	1.3 (0.99 to 1.6)	746			
Fairly likely	**1.4 (1.1 to 1.8)**	1061			
Very likely	**1.8 (1.4 to 2.3)**	554			
9, Views of services					
Prefer ED for quick tests			0.013		
Disagree/strongly disagree	1	1159			
Neither	**1.2 (1.0 to 1.5)**	797			
Strongly agree/agree	**1.4 (1.1 to 1.8)**	353			
Missing, self-complete					

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Doctors know more at ED			0.392		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Missing, self-complete					
No confidence in GP			0.652		
Strongly disagree					
Disagree					
Neither					
Agree					
Strongly agree					
Don't know					
Missing					
Missing, self-complete					
10, Frustration with access to GP					
Hard to get GP appointment			0.689		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Missing, self-complete					
Registered with GP			0.038		
Yes	1	2840			
No	**0.5 (0.3 to 0.99)**	65			
Work or looking after family makes it difficult to see GP			0.003		0.027
Disagree/strongly disagree	1	1197		1	
Neither	1.0 (0.8 to 1.2)	455		0.8 (0.6 to 1.0)	
Strongly agree/agree	**0.6 (0.5 to 0.8)**	410		**0.7 (0.5 to 0.9)**	
Not applicable	1.1 (0.8 to 1.4)	247		0.8 (0.6 to 1.1)	
Believe people use ED because can't get GP appointment			0.901		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					

continued

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Awareness of services					
Know range of NHS services to use			0.061		
Very confident					
Fairly confident					
Not confident/not at all					
Can find out when NHS services are open			0.008		
Very confident	1	1487			
Fairly confident	**1.3 (1.1 to 1.5)**	1163			
Not confident/not at all	**1.3 (1.0 to 1.8)**	255			
Can find out what tests available at services			0.105		
Very confident					
Fairly confident					
Not confident/not at all					
How to contact GP OOH			0.007		
Very confident	1	1338			
Fairly confident	**1.3 (1.1 to 1.5)**	1056			
Not very confident	**1.3 (1.1 to 1.7)**	389			
Not at all confident	1.0 (0.6 to 1.5)	122			
Will look up on the internet to see what to do			0.02		
Very likely	1	428			
Fairly likely	0.9 (0.7 to 1.2)	752			
Not very likely	1.2 (0.9 to 1.5)	680			
Not at all	**1.3 (1.0 to 1.6)**	1016			
Missing	1.1 (0.5 to 2.4)	30			
Will look up on the internet to decide what problem is			0.073		
Very likely					
Fairly likely					
Not very likely					
Not at all					
Missing					
Recursivity					
If tests are done I was right to make contact			< 0.001		0.004
Disagree/strongly disagree	1	280		1	
Neither	**1.8 (1.3 to 2.4)**	793		**1.5 (1.1 to 2.1)**	
Strongly agree/agree	**2.3 (1.7 to 3.2)**	1236		**1.7 (1.2 to 2.4)**	
Missing, self-complete		0			

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Health literacy					
Lower health literacy compared with higher health literacy – understand information	**1.4 (1.2 to 1.6)**	2269	< 0.001	**1.24 (1.1 to 1.4)**	0.005
Lower health literacy compared with higher health literacy – ability to communicate	**1.2 (1.0 to 1.3)**	2269	0.013		
Recent use of health care					
Ambulance use			0.618		
Never					
≥ 12 months					
< 12 months					
Ambulance frequent user			0.040		
< 3 times	1	2842			
≥ 3 times in 12 months	**1.7 (1.0 to 2.8)**	64			
ED use			0.006		
Never	1	411			
≥ 12 months	**0.7 (0.5 to 0.8)**	1478			
6–12 months	**0.6 (0.5 to 0.9)**	366			
3–6 months	**0.7 (0.5 to 0.98)**	234			
< 3 months	0.8 (0.6 to 1.0)	416			
ED frequent user			0.072		
< 3 times					
≥ 3 times in 12 months					
Contacted GP			< 0.001		0.016
≥ 12 months	1			1	
Never	1.0 (0.6 to 1.8)			1.0 (0.5 to 2.1)	
6–12 months	**1.5 (1.1 to 2.0)**			**1.5 (1.1 to 2.1)**	
3–6 months	1.2 (0.9 to 1.6)			0.9 (0.7 to 1.3)	
< 3 months	**1.6 (1.3 to 2.1)**			1.3 (0.98 to 1.7)	
Attitudes towards overuse of health services					
Too many use 999			0.571		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					
Too many use ED			0.097		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					

continued

TABLE 28 Variables explaining tendency to attend GP for two adult vignettes[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Too many use GP			< 0.001		
Strongly agree/agree	1	2082			
Neither	**1.3 (1.1 to 1.7)**	577			
Disagree/strongly disagree	**1.5 (1.1 to 1.9)**	247			
Reluctance to use ED			0.022		
Strongly agree/agree	1	1348			
Neither	0.9 (0.7 to 1.0)	734			
Disagree/strongly disagree	**0.8 (0.6 to 0.9)**	824			

OOH, out of hours.
a Completed only where $p < 0.05$.

TABLE 29 Full model for GP

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Age of respondent(grouped) < 7 category > dv	0.053			
Age of respondent(grouped) < 7 category > dv(1)	0.654	1.116	0.689	1.808
Age of respondent(grouped) < 7 category > dv(2)	0.952	0.985	0.612	1.588
Age of respondent(grouped) < 7 category > dv(3)	0.900	0.969	0.599	1.569
Age of respondent(grouped) < 7 category > dv(4)	0.091	1.501	0.938	2.402
Age of respondent(grouped) < 7 category > dv(5)	0.274	1.309	0.808	2.120
Age of respondent(grouped) < 7 category > dv(6)	0.049	1.695	1.003	2.866
Limiting long-term condition or disability dv	0.902			
Limiting long-term condition or disability dv(1)	0.578	0.930	0.721	1.200
Limiting long-term condition or disability dv(2)	0.884	1.024	0.748	1.402
Limiting long-term condition or disability dv(3)	0.734	1.377	0.218	8.708
DV To which of these racial groups do you consider you belong? (compressed)(1)	0.001	1.845	1.306	2.607
2007 version: Government office region	0.045			
2007 version: Government office region(1)	0.753	1.050	0.775	1.422
2007 version: Government office region(2)	0.034	1.370	1.024	1.832
2007 version: Government office region(3)	0.263	1.264	0.839	1.904
2007 version: Government office region(4)	0.039	1.669	1.026	2.715
2007 version: Government office region(5)	0.030	1.545	1.043	2.291
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?	0.678			

TABLE 29 Full model for GP (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B) Lower	Upper
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(1)	0.539	0.876	0.573	1.338
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(2)	0.335	0.834	0.578	1.206
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(3)	0.588	0.923	0.691	1.233
When did you last see or speak to an accident and emergency department (A&E) (for yourself or someone else)?(4)	0.685	1.079	0.747	1.559
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?	0.033			
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(1)	0.029	0.740	0.564	0.970
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(2)	0.211	1.185	0.908	1.548
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(3)	0.166	0.802	0.587	1.096
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(4)	0.568	0.796	0.364	1.741
Do you personally have internet access at home/work/elsewhere or on a smartphone/tablet/mobile device?(1)	0.681	1.074	0.765	1.508
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do	0.201			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(1)	0.572	1.100	0.791	1.529
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(2)	0.072	1.352	0.974	1.877
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(3)	0.106	1.314	0.943	1.831
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(4)	0.498	0.640	0.176	2.325
How many, if any, cars or vans does your household own or have the regular use of? <summary>	0.561			
How many, if any, cars or vans does your household own or have the regular use of? <summary>(1)	0.672	1.068	0.787	1.449
How many, if any, cars or vans does your household own or have the regular use of? <summary>(2)	0.339	1.163	0.854	1.583
In general, would you say your health is … (excellent to poor)	0.914			
In general, would you say your health is … (excellent to poor)(1)	0.684	0.928	0.648	1.330
In general, would you say your health is … (excellent to poor)(2)	0.984	1.004	0.696	1.448
In general, would you say your health is … (excellent to poor)(3)	0.720	0.925	0.602	1.420
In general, would you say your health is … (excellent to poor)(4)	0.855	1.052	0.612	1.807
In general, would you say your health is … (excellent to poor)(5)	0.461	1.485	0.519	4.250

continued

TABLE 29 Full model for GP (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D	0.563			
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(1)	0.213	0.871	0.701	1.082
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(2)	0.497	0.835	0.497	1.405
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(3)	0.789	1.076	0.629	1.839
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do	0.376			
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(1)	0.592	0.927	0.703	1.222
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(2)	0.210	0.824	0.608	1.116
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(3)	0.118	0.763	0.543	1.071
HPrbDr13	0.471			
HPrbDr13(1)	0.330	1.112	0.898	1.379
HPrbDr13(2)	0.279	1.232	0.844	1.798
My work or looking after my family makes it difficult to see a GP SC: B, C, D	0.056			
My work or looking after my family makes it difficult to see a GP SC: B, C, D(1)	0.563	1.106	0.786	1.556
My work or looking after my family makes it difficult to see a GP SC: B, C, D(2)	0.027	1.408	1.041	1.906
My work or looking after my family makes it difficult to see a GP SC: B, C, D(3)	0.707	1.083	0.715	1.640
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain	0.568			
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(1)	0.979	0.997	0.802	1.239
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(2)	0.309	0.850	0.621	1.163
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(3)	0.184	0.698	0.412	1.185
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(4)	0.791	1.105	0.530	2.304
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious	0.014			
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(1)	0.318	0.857	0.632	1.161
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(2)	0.007	0.657	0.485	0.890

TABLE 29 Full model for GP (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(3)	0.009	0.578	0.383	0.872
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(4)	0.068	0.577	0.320	1.040
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?	0.326			
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(1)	0.960	0.990	0.681	1.440
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(2)	0.447	0.905	0.700	1.170
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(3)	0.084	0.778	0.585	1.035
I prefer NHS services where I don't need to make an appointment SC: B, C, D	0.663			
I prefer NHS services where I don't need to make an appointment SC: B, C, D(1)	0.390	0.903	0.715	1.140
I prefer NHS services where I don't need to make an appointment SC: B, C, D(2)	0.511	0.920	0.718	1.180
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day	0.297			
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(1)	0.995	1.001	0.666	1.506
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(2)	0.122	0.781	0.572	1.068
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D	0.089			
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(1)	0.220	1.224	0.887	1.689
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(2)	0.768	0.953	0.695	1.309
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(3)	0.204	0.784	0.539	1.141
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(4)	0.592	1.159	0.675	1.993
Can you take time away from your work, during working hours, to see a GP?	0.118			
Can you take time away from your work, during working hours, to see a GP?(1)	0.418	0.854	0.583	1.251
Can you take time away from your work, during working hours, to see a GP?(2)	0.072	0.595	0.338	1.047
Can you take time away from your work, during working hours, to see a GP?(3)	0.291	1.153	0.885	1.501
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D	0.995			

continued

TABLE 29 Full model for GP (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(1)	0.917	1.016	0.756	1.366
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(2)	0.934	1.013	0.754	1.360
Are you registered with a GP?(1)	0.810	0.911	0.429	1.938
If a service does tests on me, it shows I was right to go to that service SC: B, C, D	0.040			
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(1)	0.349	0.901	0.725	1.120
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(2)	0.012	0.640	0.452	0.905
Ability	0.999	1.000	0.797	1.255
Understand	0.242	0.868	0.686	1.100
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open	0.928			
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open(1)	0.756	0.964	0.763	1.218
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open(2)	0.919	1.021	0.687	1.517
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours	0.256			
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours(1)	0.053	1.269	0.996	1.616
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours(2)	0.188	1.246	0.898	1.730
For unexpected non non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours(3)	0.778	1.081	0.629	1.859
I think too many people go to their GP when they do not need to	0.137			
I think too many people go to their GP when they do not need to(1)	0.058	1.261	0.992	1.604
I think too many people go to their GP when they do not need to(2)	0.364	1.177	0.828	1.673
Many people are reluctant to use A&E when they have an urgent health problem	0.780			
Many people are reluctant to use A&E when they have an urgent health problem(1)	0.814	0.972	0.765	1.234
Many people are reluctant to use A&E when they have an urgent health problem(2)	0.481	0.921	0.733	1.158
Constant	0.449	0.659		

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a]

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Sociodemographic characteristics					
Age (years)			< 0.001		< 0.001
18–24	1	169		1	
25–34	0.8 (0.5 to 1.1)	384		0.8 (0.5 to 1.2)	
35–44	0.7 (0.5 to 0.97)	467		0.6 (0.4 to 1.0)	
45–54	0.9 (0.7 to 1.4)	469		1.1 (0.7 to 1.6)	
55–64	1.2 (0.8 to 1.7)	508		1.3 (0.8 to 2.0)	
65–74	**1.5 (1.1 to 2.2)**	499		**1.6 (1.0 to 2.5)**	
≥ 75	1.3 (0.9 to 1.9)	405		1.2 (0.7 to 1.9)	
Sex			< 0.001		< 0.001
Female	1	1649		1	
Male	**1.4 (1.2 to 1.6)**	1257		**1.5 (1.2 to 1.8)**	
Ethnicity			< 0.001		< 0.001
White	1	2572		1	
BAME	**2.2 (1.7 to 2.9)**	**334**		**2.6 (1.8 to 3.8)**	
Social class			< 0.001		
I	1	214			
II	1.2 (0.9 to 1.6)	1039			
III non-manual	**1.5 (1.1 to 2.0)**	569			
III manual	**2.0 (1.4 to 2.8)**	416			
IV and V	**1.8 (1.3 to 2.5)**	524			
Armed forces	1.2 (0.7 to 2.3)	52			
Deprivation			0.585		
5 (affluent)					
4					
3					
2					
1 (most deprived)					
Rurality			0.505		
Rural					
Urban					
Region			0.003		
North England	1	474			
Midlands	1.0 (0.8 to 1.3)	794			
South England	1.1 (0.8 to 1.3)	957			

continued

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
London	**1.5 (1.1 to 2.1)**	285			
Wales	1.4 (0.9 to 2.1)	132			
Scotland	**1.6 (1.2 to 2.2)**	264			
In household with children aged < 5 years old			0.006		
No	1	2591			
Yes	**0.7 (0.6 to 0.9)**	300			
Resources available					
Car ownership			0.002		
≥ 1 cars	1	1478			
No car	**1.5 (1.2 to 1.9)**	428			
Missing	1.1 (0.9 to 1.3)	1000			
Personal access to the internet			< 0.001		
Yes	1	2542			
No	**1.7 (1.4 to 2.2)**	364			
Health					
General health			< 0.001		
Excellent	1	223			
Very good	0.9 (0.6 to 1.1)	725			
Good	1.0 (0.8 to 1.4)	799			
Fair	1.4 (0.97 to 2.0)	360			
Poor	**1.6 (1.0 to 2.4)**	163			
Can't choose	1.6 (0.7 to 3.3)	39			
Missing/not included	1				
Long-term limiting illness			< 0.001		0.001
None	1	1766		1	
Non-limiting	0.9 (0.8 to 1.1)	586		0.8 (0.7 to 1.1)	
Limiting	**1.6 (1.3 to 2.0)**	541		**1.5 (1.1 to 2.0)**	
Don't know	0.5 (0.2 to 1.6)	13		0.5 (0.1 to 2.6)	
Programme theories *1, Risk: uncertainty causes anxiety*					
Worry pain is a sign of something serious			< 0.001		0.026
Not likely at all	1	358		1	
Not likely	1.1 (0.9 to 1.4)	1138		1.0 (0.8 to 1.4)	
Fairly likely	**1.5 (1.2 to 1.9)**	876		1.3 (0.95 to 1.8)	
Very likely	**2.5 (1.8 to 3.4)**	415		**1.6 (1.1 to 2.4)**	
It depends		119		1.3 (0.8 to 2.3)	

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Confident in deciding to see a doctor or self-care			0.003		
Very confident	1	993			
Fairly confident	1.1 (0.9 to 1.3)	1130			
Not very confident	1.6 (0.98 to 2.5)	89			
Never had problem	**2.2 (1.3 to 3.6)**	97			
2, Risk: previous traumatic event					
Had problem, did not see doctor and was serious			0.375		
No					
Yes					
3, Risk: responsibility for others					
4, Speed: need to get back to normal					
Sleep			< 0.001		
Do not see doctor	1	2010			
See doctor if sleep loss	**1.8 (1.5 to 2.2)**	634			
See doctor if any loss	**2.5 (1.9 to 3.5)**	262			
Work			< 0.001		0.023
Do not see doctor	1	935		1	
See doctor if work loss	**1.3 (1.1 to 1.6)**	1709		**1.2 (1.0 to 1.5)**	
See doctor if any loss	**2.7 (1.9 to 3.7)**	262		**1.7 (1.1 to 2.5)**	
5, Speed: need to seek pain relief					
Likely to take medication			0.028		
Very likely	1	1081			
Fairly	0.9 (0.7 to 1.1)	1257			
Not very	**0.7 (0.5 to 0.9)**	376			
Not at all	0.7 (0.5 to 1.1)	135			
Depends	0.7 (0.4 to 1.2)	57			
6, Speed: waited long enough					
7a, Stressful lives					
Overwhelmed when have health problem			< 0.001		0.031
Strongly disagree	1	487		1	
Disagree	1.2 (0.98 to 1.5)	872		1.0 (0.8 to 1.3)	
Neither	**2.0 (1.5 to 2.6)**	537		**1.4 (1.1 to 1.9)**	
Strongly agree/agree	**2.1 (1.6 to 2.9)**	314		1.3 (0.9 to 1.8)	
Never had problem	**2.0 (1.2 to 3.1)**	99		**1.7 (1.0 to 2.8)**	

continued

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Find life stressful			0.012		
No	1	637			
A bit	1.0 (0.8 to 1.2)	1316			
Quite	0.8 (0.6 to 1.0)	637			
Very	0.9 (0.7 to 1.2)	297			
Don't know	**0.2 (0.1 to 0.7)**	19			
Someone to care for them if they are ill			0.004		
Definitely	1	1240			
Probably	0.9 (0.8 to 1.1)	697			
Probably not	1.1 (0.8 to 1.4)	280			
Don't know	**2.3 (1.4 to 3.9)**	92			
Can take time off work for GP			< 0.001		
Yes	1	1078			
Yes but not easy	0.8 (0.6 to 1.0)	275			
No	0.7 (0.5 to 1.0)	127			
Not applicable/missing	**1.5 (1.3 to 1.8)**	1426			
7b, Low burden					
Travel to ED			< 0.001		
Very difficult	1	610			
Neither	**0.7 (0.5 to 0.96)**	269			
Fairly easy	**0.7 (0.6 to 0.9)**	1172			
Very easy	**0.6 (0.5 to 0.7)**	855			
Opening hours a problem			0.239		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Prefer no appointments			< 0.001		
Disagree/strongly disagree	1	685			
Neither	**1.2 (1.0 to 1.5)**	799			
Strongly agree/agree	**1.6 (1.3 to 2.0)**	825			
Want convenient times			0.737		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Willing to wait in waiting room			< 0.001		
Disagree/strongly disagree	1	361			
Neither	0.9 (0.7 to 1.3)	194			
Strongly agree/agree	**1.6 (1.3 to 2.0)**	2351			
8, Compliance with family/friends					
Check with family and friends for what to do			0.027		
Not very likely	1	545			
Not likely	1.0 (0.8 to 1.3)	746			
Fairly likely	1.1 (0.9 to 1.3)	1061			
Very likely	**1.4 (1.1 to 1.8)**	554			
9, Views of services					
Prefer ED for quick tests			< 0.001		< 0.001
Disagree/strongly disagree	1	1159		1	
Neither	**1.6 (1.3 to 1.9)**	797		**1.3 (1.1 to 1.7)**	
Strongly agree/agree	**2.6 (1.9 to 3.3)**	353		**1.9 (1.4 to 2.6)**	
Missing, self-complete		0			
Doctors know more at ED			< 0.001		
Disagree/strongly disagree	1	850			
Neither	**1.5 (1.2 to 1.8)**	1041			
Strongly agree/agree	**1.4 (1.1 to 1.8)**	418			
Missing, self-complete		0			
No confidence in GP			0.895		
Strongly disagree					
Disagree					
Neither					
Agree					
Strongly agree					
Don't know					
Missing					
Missing, self-complete					
10, Frustration with access to GP					
Hard to get GP appointment			0.940		
Disagree/strongly disagree					
Neither					
Strongly agree/agree					
Missing, self-complete					

continued

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Registered with GP			0.019		
Yes	1	2840			
No	**0.6 (0.3 to 0.9)**	65			
Work or looking after family makes it difficult to see GP			< 0.001		0.040
Disagree/strongly disagree	1	1197		1	
Neither	1.2 (0.98 to 1.5)	455		1.0 (0.8 to 1.3)	
Strongly agree/agree	**0.7 (0.5 to 0.8)**	410		**0.7 (0.5 to 0.9)**	
Not applicable	1.2 (0.9 to 1.6)	247		0.9 (0.7 to 1.3)	
Believe people use ED because can't get GP appointment			0.499		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					
Awareness of services					
Know range of NHS services to use			0.118		
Very confident					
Fairly confident					
Not confident/not at all					
Can find out when NHS services are open			0.007		
Very confident	1	1487			
Fairly confident	**1.2 (1.1 to 1.5)**	1163			
Not confident/not at all	**1.4 (1.0 to 1.8)**	255			
Can find out what tests available at services			0.753		
Very confident					
Fairly confident					
Not confident/not at all					
How to contact GP OOH			0.008		0.043
Very confident	1	1338		1	
Fairly confident	1.1 (0.96 to 1.3)	1056		1.1 (0.9 to 1.4)	
Not very confident	**1.5 (1.2 to 1.9)**	389		**1.5 (1.1 to 2.0)**	
Not at all confident	0.9 (0.6 to 1.4)	122		0.8 (0.5 to 1.3)	
Will look up on the internet to see what to do			< 0.001		0.015
Very likely	1	428		1	
Fairly likely	0.8 (0.7 to 1.1)	752		1.0 (0.7 to 1.3)	
Not very likely	**1.3 (1.0 to 1.7)**	680		**1.3 (1.0 to 1.8)**	
Not at all	**1.4 (1.1 to 1.7)**	1016		**1.3 (1.0 to 1.8)**	
Missing	0.7 (0.3 to 1.4)	30		0.5 (0.2 to 1.5)	

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Will look up on the internet to decide what problem is			< 0.001		
Very likely	1	667			
Fairly likely	0.9 (0.7 to 1.1)	797			
Not very likely	1.2 (0.95 to 1.6)	472			
Not at all	**1.4 (1.1 to 1.7)**	940			
Missing	0.6 (0.3 to 1.2)	30			
Recursivity					
If tests are done I was right to make contact			< 0.001		0.002
Disagree/strongly disagree	1	280		1	
Neither	**1.8 (1.3 to 2.3)**	793		**1.4 (1.0 to 1.9)**	
Strongly agree/agree	**2.5 (1.9 to 3.2)**	1236		**1.7 (1.2 to 2.2)**	
Missing, self-complete		0			
Health literacy					
Lower health literacy compared with higher health literacy – understand information	**1.5 (1.3 to 1.7)**		< 0.001		
Lower health literacy compared with higher health literacy – ability to communicate	**1.2 (1.1 to 1.4)**		0.005		
Recent use of health care					
Ambulance use			0.238		
Never					
≥ 12 months					
< 12 months					
Ambulance frequent user			0.235		
< 3 times					
≥ 3 times in 12 months					
ED use			0.450		
Never					
≥ 12 months					
6–12 months					
3–6 months					
< 3 months					
ED frequent user			0.017		
< 3 times	1	2738			
≥ 3 times in 12 months	**1.5 (1.1 to 2.1)**	167			

continued

TABLE 30 Variables explaining tendency to contact any of the three services for any vignette[a] (*continued*)

Variables	Univariate			Final multivariable model	
	Odds ratio (95% CI)	*n*	*p*-value	Odds ratio (95% CI)	*p*-value
Contacted GP			0.015		0.043
≥ 12 months	454			1	
Never	0.8 (0.5 to 1.4)	65		0.7 (0.4 to 1.5)	
6–12 months	1.3 (0.98 to 1.7)	484		**1.5 (1.1 to 2.1)**	
3–6 months	1.2 (0.9 to 1.5)	518		1.1 (0.8 to 1.6)	
< 3 months	**1.4 (1.1 to 1.7)**	1384		1.4 (0.98 to 1.7)	
Attitudes towards overuse of health services					
Too many use 999			0.112		
Strongly agree/agree					
Neither					
Disagree/strongly disagree					
Too many use ED			0.015		
Strongly agree/agree	1	2515			
Neither	**1.4 (1.1 to 1.8)**	291			
Disagree/strongly disagree	1.5 (0.95 to 2.3)	100			
Too many use GP			0.017		
Strongly agree/agree	1	2082			
Neither	**1.3 (1.0 to 1.5)**	577			
Disagree/strongly disagree	**1.3 (1.0 to 1.8)**	247			
Reluctance to use ED			0.043		
Strongly agree/agree	1	1348			
Neither	0.9 (0.8 to 1.1)	734			
Disagree/strongly disagree	**0.8 (0.7 to 0.95)**	824			

OOH, out of hours.
a Completed only where $p < 0.05$.

TABLE 31 Full model for any service

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Age of respondent(grouped) < 7 category > dv	0.000			
Age of respondent(grouped) < 7 category > dv(1)	0.828	0.943	0.555	1.602
Age of respondent(grouped) < 7 category > dv(2)	0.320	0.770	0.461	1.288
Age of respondent(grouped) < 7 category > dv(3)	0.222	1.379	0.824	2.308
Age of respondent(grouped) < 7 category > dv(4)	0.051	1.678	0.998	2.820
Age of respondent(grouped) < 7 category > dv(5)	0.014	2.007	1.154	3.491

TABLE 31 Full model for any service (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B) Lower	Upper
Age of respondent(grouped) < 7 category > dv(6)	0.301	1.375	0.752	2.514
Sex of respondent(1)	0.000	0.667	0.538	0.827
Limiting long-term condition or disability dv	0.003			
Limiting long-term condition or disability dv(1)	0.132	0.822	0.636	1.061
Limiting long-term condition or disability dv(2)	0.013	1.544	1.095	2.178
Limiting long-term condition or disability dv(3)	0.190	0.233	0.026	2.063
Respondent: social class [pre-SOC2000] best estimate dv	0.395			
Respondent: social class [pre-SOC2000] best estimate dv(1)	0.333	1.203	0.827	1.750
Respondent: social class [pre-SOC2000] best estimate dv(2)	0.157	1.346	0.892	2.029
Respondent: social class [pre-SOC2000] best estimate dv(3)	0.055	1.555	0.991	2.440
Respondent: social class [pre-SOC2000] best estimate dv(4)	0.094	1.453	0.938	2.251
Respondent: social class [pre-SOC2000] best estimate dv(5)	0.861	1.083	0.445	2.638
IMD_ALL	0.514			
IMD_ALL(1)	0.725	1.063	0.757	1.493
IMD_ALL(2)	0.398	1.157	0.825	1.624
IMD_ALL(3)	0.415	1.147	0.825	1.595
IMD_ALL(4)	0.098	1.333	0.949	1.874
DV To which of these racial groups do you consider you belong? (compressed)(1)	0.000	2.431	1.574	3.753
2007 version: Government office region	0.095			
2007 version: Government office region(1)	0.934	0.987	0.731	1.333
2007 version: Government office region(2)	0.755	0.954	0.711	1.280
2007 version: Government office region(3)	0.111	1.428	0.921	2.212
2007 version: Government office region(4)	0.235	1.375	0.813	2.325
2007 version: Government office region(5)	0.079	1.457	0.957	2.219
Number of Respondents children in HH aged 0–4yrs – dv(1)	0.540	1.120	0.779	1.609
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?	0.061			
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(1)	0.344	0.880	0.674	1.147
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(2)	0.396	1.127	0.855	1.486
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(3)	0.029	0.713	0.526	0.966
When did you last see or speak to a GP from your GP surgery (for yourself or someone else)?(4)	0.191	0.593	0.272	1.296
Do you personally have internet access at home/work/elsewhere or on a smartphone/tablet/mobile device?(1)	0.420	1.177	0.792	1.751

continued

TABLE 31 Full model for any service (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be	0.989			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(1)	0.877	0.973	0.687	1.378
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(2)	0.762	0.937	0.613	1.431
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(3)	0.604	0.869	0.512	1.476
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what the problem might be(4)	0.792	0.771	0.111	5.338
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do	0.239			
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(1)	0.935	1.017	0.686	1.507
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(2)	0.170	1.356	0.878	2.094
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(3)	0.194	1.445	0.829	2.521
For unexpected non-life-threatening health problem, how likely is it you would … look on the internet to decide what to do(4)	0.465	0.481	0.068	3.423
How many, if any, cars or vans does your household own or have the regular use of? <summary>	0.820			
How many, if any, cars or vans does your household own or have the regular use of? <summary>(1)	0.998	1.000	0.712	1.405
How many, if any, cars or vans does your household own or have the regular use of? <summary>(2)	0.710	1.069	0.753	1.516
In general, would you say your health is … (excellent to poor)	0.424			
In general, would you say your health is … (excellent to poor)(1)	0.101	0.743	0.521	1.059
In general, would you say your health is … (excellent to poor)(2)	0.261	0.809	0.560	1.170
In general, would you say your health is … (excellent to poor)(3)	0.364	0.814	0.521	1.270
In general, would you say your health is … (excellent to poor)(4)	0.059	0.568	0.316	1.022
In general, would you say your health is … (excellent to poor)(5)	0.750	0.813	0.228	2.903
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D	0.558			
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(1)	0.170	0.855	0.684	1.070
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(2)	0.861	0.949	0.530	1.699
How confident are you in deciding when to see a doctor, or deal with the problem yourself, for an unexpected non-life-threatening health problem? SC: B, C, D(3)	0.886	1.053	0.519	2.135

TABLE 31 Full model for any service (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do	0.534			
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(1)	0.141	0.801	0.597	1.076
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(2)	0.377	0.866	0.629	1.192
For unexpected non-life-threatening health problem, how likely is it you would … check what family or friends think you should do(3)	0.405	0.861	0.605	1.225
HPrbDr13	0.085			
HPrbDr13(1)	0.086	1.205	0.974	1.491
HPrbDr13(2)	0.058	1.557	0.984	2.464
My work or looking after my family makes it difficult to see a GP SC: B, C, D	0.058			
My work or looking after my family makes it difficult to see a GP SC: B, C, D(1)	0.033	1.453	1.032	2.047
My work or looking after my family makes it difficult to see a GP SC: B, C, D(2)	0.008	1.489	1.109	1.997
My work or looking after my family makes it difficult to see a GP SC: B, C, D(3)	0.077	1.475	0.959	2.267
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain	0.697			
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(1)	0.752	0.965	0.772	1.206
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(2)	0.182	0.810	0.594	1.104
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(3)	0.454	0.835	0.520	1.340
For unexpected non-life-threatening pain, how likely is it you would … take medication to stop the pain(4)	0.700	0.860	0.400	1.850
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious	0.140			
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(1)	0.203	0.799	0.566	1.129
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(2)	0.014	0.654	0.466	0.919
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(3)	0.070	0.677	0.444	1.033
For unexpected non-life-threatening pain, how likely is it you would … worry that it is a sign of something serious(4)	0.420	0.780	0.426	1.427
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?	0.228			
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(1)	0.112	0.723	0.484	1.079

continued

TABLE 31 Full model for any service (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(2)	0.414	0.892	0.678	1.174
How easy or difficult would you find it to travel to an accident and emergency department (A&E)?(3)	0.086	0.773	0.576	1.037
I prefer NHS services where I don't need to make an appointment SC: B, C, D	0.598			
I prefer NHS services where I don't need to make an appointment SC: B, C, D(1)	0.427	0.906	0.710	1.156
I prefer NHS services where I don't need to make an appointment SC: B, C, D(2)	0.345	0.885	0.688	1.140
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day	0.304			
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(1)	0.150	0.735	0.484	1.118
For unexpected non-life-threatening health problem … I'm willing to wait a few hours in a waiting room if it means I can be seen that day(2)	0.482	0.900	0.671	1.207
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D	0.110			
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D(1)	0.053	0.799	0.637	1.003
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D(2)	0.556	0.909	0.662	1.249
Do you have family, friends or a partner who could look after them if have an unexpected non-life-threatening health problem? SC: B, C, D(3)	0.212	1.602	0.765	3.356
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D	0.070			
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(1)	0.491	1.137	0.790	1.636
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(2)	0.242	0.814	0.576	1.150
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(3)	0.196	0.773	0.524	1.142
When I have an unexpected health problem that is not life-threatening, I tend to feel overwhelmed SC: B, C, D(4)	0.497	1.229	0.677	2.232
Generally, do you find your life stressful?	0.989			
Generally, do you find your life stressful?(1)	0.664	1.059	0.816	1.375
Generally, do you find your life stressful?(2)	0.708	1.062	0.775	1.456
Generally, do you find your life stressful?(3)	0.878	1.032	0.687	1.552
Generally, do you find your life stressful?(4)	0.791	0.803	0.159	4.062
Can you take time away from your work, during working hours, to see a GP?	0.414			
Can you take time away from your work, during working hours, to see a GP?(1)	0.827	1.040	0.732	1.477

TABLE 31 Full model for any service (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
Can you take time away from your work, during working hours, to see a GP?(2)	0.109	0.662	0.399	1.097
Can you take time away from your work, during working hours, to see a GP?(3)	0.997	1.000	0.761	1.314
I think doctors at A&E know more than GPs SC: B, C, D	0.059			
I think doctors at A&E know more than GPs SC: B, C, D(1)	0.022	1.402	1.049	1.873
I think doctors at A&E know more than GPs SC: B, C, D(2)	0.039	1.380	1.016	1.874
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D	0.000			
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(1)	0.012	0.639	0.452	0.904
I prefer A&E to a GP because I can get tests done quickly SC: B, C, D(2)	0.000	0.476	0.336	0.674
If a service does tests on me, it shows I was right to go to that service SC: B, C, D	0.026			
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(1)	0.205	0.866	0.693	1.082
If a service does tests on me, it shows I was right to go to that service SC: B, C, D(2)	0.008	0.653	0.477	0.893
Ability	0.916	1.013	0.803	1.278
Understand	0.474	0.912	0.710	1.172
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open	0.644			
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open(1)	0.582	0.935	0.737	1.187
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, when NHS services are open(2)	0.592	1.127	0.728	1.747
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours	0.018			
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours(1)	0.134	1.206	0.944	1.541
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours(2)	0.005	1.663	1.168	2.367
For unexpected non-life-threatening health problem, how confident are you that … you know, or can easily find out, how to contact GP out of hours(3)	0.488	0.822	0.473	1.429
I think too many people use A&E when they do not need to	0.366			
I think too many people use A&E when they do not need to(1)	0.193	1.285	0.881	1.875
I think too many people use A&E when they do not need to(2)	0.498	1.248	0.657	2.373

continued

TABLE 31 Full model for any service (*continued*)

Variables	Sig.	Exp(B)	95% CI for Exp(B)	
			Lower	Upper
I think too many people go to their GP when they do not need to	0.173			
I think too many people go to their GP when they do not need to(1)	0.066	1.284	0.983	1.675
I think too many people go to their GP when they do not need to(2)	0.490	1.148	0.776	1.698
Many people are reluctant to use A&E when they have an urgent health problem	0.929			
Many people are reluctant to use A&E when they have an urgent health problem(1)	0.820	0.972	0.759	1.245
Many people are reluctant to use A&E when they have an urgent health problem(2)	0.710	0.958	0.762	1.204
Constant	0.093	3.014		

Appendix 10 Integration grid

TABLE 32 Adapted triangulation protocol

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
PT1 Uncertainty causing anxiety	When there is uncertainty surrounding symptoms (M) because they do not fit with people's expectations or prior experience (e.g. last longer, are more severe, are unfamiliar or do not respond to self-care in the expected timescale) (C/M), this increases the perceived risk that the problem may be serious (M) and an immediate need to establish what is wrong and obtain reassurance (M). This concern prompts the use of the ED (O), where it is perceived that the most appropriate resources and expertise required to establish cause can be accessed quickly (C), often in the context of timely or satisfactory answers not having been received from primary care services (C)	• Some people were anxious about things but other were concerned rather than anxious. Meaning and seriousness of symptoms. Could be serious but also feel unlikely to be serious but … (YP, PAR) • Need for reassurance (PAR) • Anxious exacerbated by mental health (DEP)	Yes	Tendency to use ambulance, GP and any service	Convergence

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
PT2 Previous traumatic event	When people have experience of previous traumatic health incidents (e.g. delayed help-seeking leading to serious consequences), or have awareness of such incidents experienced by others or in the media (C), they have increased anxiety and awareness of danger (C/M) and reduced confidence in their own judgement (M). They are therefore unwilling to take risks when a health problem arises (M), leading them to seek immediate help and advice from an expert in the form of emergency care, including ambulance services and EDs (O)	• Part of PT1, contributing to anxiety • Events for others as well as themselves (YP) and general issue about child health results in lower threshold for seeking reassurance (PAR)	–	No	Disagreement: may simply be part of PT1, no support for this in survey but review highlights that people may not be aware of it. Also did we measure it well enough in the survey?
PT3 Responsibility for others	When people are in a position of responsibility for others they are less willing to take risks with someone else's health than with their own, and fear the consequences (e.g. distress/ guilt, dismissal, litigation) (M) of not doing 'the right thing'. This leads them to seek or to recommend seeking urgent care, particularly the ED (O)	• Key driver for parents of young children (PAR) • Also there for older people and older children (DEP) • 'They can change quickly' relates to vulnerable children and older people	Yes	• Children have higher tendency 37–42% vs. adults 1.5–30% in vignettes • Not tested in regression	Some convergence: strongly present for parents of young children

continued

TABLE 32 Adapted triangulation protocol (*continued*)

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
PT4 Inability to function normally	When people are prevented them from undertaking their normal lives, roles or responsibilities (e.g. paid work, child care) (C), this creates a need to get back to normal quickly (M), to get on with their lives and discharge their responsibilities. This prompts use of urgent care (O) because it can resolve a problem quickly by being both more accessible and more efficient than alternatives (C)	• YP will not wait (PT6) because of need to function normally • Addition: anticipation of lost functioning too	Yes	• As functioning decreases, percentage making 'clinically unnecessary' use increases • Tendency higher for ED and any service	Convergence
PT5 Need for immediate pain relief	When people are in pain or discomfort which they find intolerable (C/M), and they believe or experience that no primary care appointments are available within an acceptable time period (C), they seek care from a more urgent service – usually the ED (O) – because of a need to obtain prompt relief from their distress (M)	• Part of not wanting to delay further (YP, DEP) • Driver for ED and 999 (DEP) • Unwillingness to medicate for a couple of people (DEP, PAR)	Pharmacists offer free prescriptions not just GPs (DEP)	No	Some convergence but not supported by survey. However, we did not measure this well

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
PT6 Delayed already so cannot wait longer	When people delay seeking primary care treatment (for various reasons, including deliberation and indecision, cost of treatment, lack of transport, complex living situations, mistrust of health services and work responsibilities) (C), they wait, often using self-help measures, and hope that the situation will improve or go away (C). The condition reaches a 'tipping point' where either it is no longer tolerable (M) or other circumstances force a decision (M), and people feel they cannot wait any longer (M). At this point, if a primary care service is unavailable to them (C), they feel they have no choice but to use an emergency service (O)	• Strong driver for YP + DEP. There for parents too; they wait and self-care and then concern about possible fast escalation drives need for reassurance immediately • Pain drove this (DEP) • Addition: YP trying to get long-term issue resolved and just fed up. Almost like the frustration of PT10 but not about access	Yes	Not tested in regression	Some convergence but not tested in regression

continued

TABLE 32 Adapted triangulation protocol (*continued*)

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
PT7 Complex/ stressful lives and inability to cope	When people are already experiencing significant stresses which impact on the internal and external resources available to them (money, time) (C) they have less capacity to cope with the additional challenge of a new or changed health problem. Symptoms are therefore likely to trigger emotional distress, including feelings of loss of control and helplessness (M), leading them to use emergency services because this is less burdensome than making an appointment with a GP. This is more likely to occur when people cannot easily or quickly access a primary care service (C)	• Complex lives. YP + DEP: impact of poor mental health created difficulty coping, stress caused by work exacerbated health problem, need easy option of busy lives (YP) • Limited resources (YP) • Less obvious for parents: single parent with no car, add in time of night. But parents could feel worn down by frequently sick child • Social isolation (DEP)	• Yes • Improve provision of mental health services (YP) • Specialist mental health ED (YP) • Improve mental health literacy (YP)	Tendency for ambulance, ED, GP and any service	• Complementarity: mental health is a major stressor for young people and deprived communities • Convergence: strong support for this PT from all sources
PT8 Compliance: following advice of trusted others	When people are anxious or concerned about a health problem and have sought the advice of trusted others (C), either in their social network (e.g. family) or health professionals (particularly primary care staff), and have been advised to seek urgent care, particularly the ED (M), they are likely to then use those emergency services (O)	Featured for YP, with lots of shared decision-making (YP) Social network norms about attending ED (YP, PAR)	Yes	Features in a number of the univariate analyses but not the multivariable	Convergence but not as one of the strongest drivers

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
PT9 Availability and quality of service	When people have individual experience or knowledge, or cultural beliefs about the differing quality or availability of primary and emergency services [e.g. primary care offering inadequate diagnosis and care or discrimination (US context only)], or EDs having better resources, expertise or more thorough care (C), they are likely to choose emergency care, particularly the ED (O) in which they have more trust and confidence (M)	• Positive speed and transportation of 999, positive ED having diagnostic tools and speed, perceptions and experiences of services (YP) • ED has specialists (PAR) • Familiarity with ED (PAR) • Negative GP because not dealing with on-going problem (YP) or poor quality (DEP, PAR), including GP OOH (PAR) • Positive GP because continuity of care (YP) or best place and relationship (DEP)	Yes	Tendency for ED based on attraction of ED rather than problems with GP	Some disagreement: review, interviews and focus groups show unhappiness with GP but it is attraction of ED that explains tendency
PT10 Frustration with access to GP	When people are unable to obtain an appointment with a primary care practitioner (C/M) this can further exacerbate the feelings of anxiety and cause panic (M). Individuals can experience feelings of frustration (M), mistrust (M), and the perception of an uncaring service (M), feeling they have no other choice (M) but to contact an emergency service (O)	• Could not get appointment and found system of getting appointment hard (DEP, PAR) • Positive access to GP for children only (PAR)	• Dichotomy of same-day or booked appointment weeks ahead a real problem (DEP). What about an appointment in 2 days' time? • Want GP outside office hours (YP, DEP)	Did not explain tendency	• Complementarity: focus groups explain that the appointment system and the types of appointments offered are problematic, not just about not being able to get one • Some disagreement: why did access to a GP appointment not contribute to the regressions? Is this because people have to experience this in practice rather than in theory?

continued

TABLE 32 Adapted triangulation protocol (*continued*)

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
Other drivers					
Awareness of services	Lack of awareness of alternatives appeared in some reviews and articles but not strongly enough to be a PT	• Not aware of MIU (YP) • Might not be aware of them (DEP)	• Educate about use of NHS 111 and GP OOH, and what pharmacists and NHS 111 actually do (PAR, YP, DEP) • Advertise alternatives in places people go, not health settings (YP)	Awareness of how to contact GP OOH explains tendency to use any service	Some disagreement. Big topic of conversation in the focus groups but did not feature strongly in other components. Is this because it is not a strong driver?
Problems with other services such as NHS 111, WIC and MIU	–	Did not necessarily like alternatives (DEP)	• Improve skills of practitioners in WICs (DEP) • Improve NHS 111 to reduce questions asked by linking to notes (DEP) • Improve space in pharmacy for consultation (DEP) • Pharmacists offer free prescriptions not just GPs (DEP) • Language assistance outside ED (PAR) • Specialist GP for children (PAR) • Proactive engagement from health visitors (PAR) • More child-friendly WIC (PAR)	–	The focus groups identified details about this issue even though in the interviews we asked why they did not use alternatives

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
Recursivity: learnt behaviour	In qualitative study about chronic conditions	• 999 (YP) • Could work via family/friends not just self • Parents had been to ED and liked it there (PAR)		Tendency to use ED, GP and any service	• Convergence: people get validation from services that they have done the right thing previously • Complementarity: can also see that it is not just their own experience but that of family and friends • Recursivity has wider impact than identified in the literature?
Health literacy	Some evidence in recent quantitative publications about EDs	• Difficult to see how health literacy score aligned with content of interview • Reluctance to use medication/knowledge about it (DEP and PAR)	• Improve 'mental health literacy' (YP) • Improve 'health service literacy' by educating about use of services in school (YP)	Tendency to use ambulance and GP	Some convergence but difficult to see it in the interviews
Recent use of services	–	–	–	• Tendency to use ambulance if have used it recently, tendency to use any service if used GP recently • Frequency of service use did not explain tendency	This factor was tested because we felt that people who had used services recently would base their vignette answers on experience. It could explain tendency because people are ill, or this could be related to recursivity in that it is easier to use it a second time if use recently?

continued

TABLE 32 Adapted triangulation protocol (*continued*)

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
Attitudes towards health service misuse	A couple of quantitative articles identified population views of this, showing high levels of agreement about misuse	–	Educate or punish offenders and misusers (YP, DEP)	People who do not think services are misused tend to be 'clinically unnecessary' users in univariate analyses for all the services but may be correlated with other variables because does not appear in most of the multivariable regressions	Not enough information about this but certainly worth exploring further
Convenience	Appears frequently in different reviews	• Proximity of living or working near ED makes this easy option (YP) • 999 is transportation to ED (YP) • Proximity to GP makes this easy option (YP) • Poverty (YP) • Could also be impatience and disorganised life (YP)	Co-locate services in local areas (DEP)	Not explicitly addressed	PT4 and PT7 could appear to be convenience, and interviewees may give accounts of being appropriate users, but little evidence of misuse for convenience. Cost of travel is an issue for people with little money
Digital use	–	• Could cause anxiety (YP, DEP) • Consulted websites (PAR)	Develop app to direct people to best care (YP)	Lack of access to the internet increased tendency to use ambulance	Not many findings about this but could be explored further as an intervention (e.g. NHS 111 Online)
Time of day/day of week	Evident in some reviews	• Lack of support at night (YP, PAR) • Not wanting to wait until weekend in case it got worse – anticipation (PAR)	GP wanted outside office hours (YP, DEP)	No real difference between Wednesday and Saturday in child vignettes	• Disagreement: on reflection should have had middle of the night in one of the vignettes? • Certainly there as a driver but not a strong one?

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
Population subgroups					
Young people	Nothing in qualitative studies but identified as non-urgent users of EDs in quantitative studies	See above	See above	• More likely to have some of the 10 PTs • Does not explain tendency	Disagreement
Parents	• Identified as 'clinically unnecessary' users of ED and GP in our review • Appear strongly in PT3, PT4, PT7 and PT9	See above	See above	• More likely to have some of the 10 PTs • Does not explain tendency	Disagreement
Deprivation/social class/car ownership	• May be 'clinically unnecessary' users of services but mixed evidence • Appear strongly in PT7	See above	See above	• More likely to have some of the 10 PTs • Does not explain tendency except for ambulance where lack of resources including a car are significant	Disagreement for ED and GP
Ethnicity	Mixed findings in reviews and quantitative studies	–	–	BAME consistently explains 'clinically unnecessary' use of all services	Relies on survey to show BAME consistently explains 'clinically unnecessary' use of all services
Age	–	–	–	Those aged > 65 years more likely to contact GP; those aged 55–74 years more likely to contact ED for a child	Relies on survey to show that older people have higher tendency for some services in some situations
Sex	Mixed findings in reviews and quantitative studies	–	–	Males consistently have higher tendency for emergency services, not for GPs	Relies on survey to show that males consistently have higher 'clinically unnecessary' use of emergency services

continued

TABLE 32 Adapted triangulation protocol (*continued*)

Themes	WP1 realist review	WP2 qualitative interviews	WP2 focus groups	WP3 survey	Convergence, complementarity, disagreement, and silence
Chronic conditions	Appear strongly in PT3, PT9	PT7	–	No	Little to say here
Region	–	Not addressed	Not addressed	Scotland, Wales, London appear to have higher tendency for ED and GP	WP1 was international, mainly the USA and Australia. WP2 was in two regions in the north/ midlands of England so cannot explain why these regional differences appeared consistently for ED and GP use
Service-specific drivers					
Emergency ambulance	Not a lot of qualitative studies but a review based on health professional as well as patient view	Not a lot of interviews	–	Lack of resources is a major issue – no car, no internet access, low health literacy, manual social class	Relies heavily on the survey to show lack of resources an issue
ED	Lots of studies identifying the attraction of the ED and poor access to GP	• Poor GP • Poor access to GP • GP said to go • ED has what is needed • Proximity to ED • Influence of others	–	Need to get back to normal, stress, attraction of ED with tests and expertise	Convergence of WPs around attraction of ED
General practice	Not a lot of qualitative studies	Good access and relationship, best place, proximity	–	Attend if uncertain, have stressful lives, low health literacy	Highlights that people do access GPs in a timely way, use GP and appreciate GP

DEP, people from socially deprived communities; OOH, out of hours; PAR, parents of young children; PT, programme theory; YP, young adults.

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