

## The work, workforce, technology and organisational implications of the '111' single point of access telephone number for urgent (non-emergency) care: a mixed-methods case study

*Joanne Turnbull, Catherine Pope, Alison Rowsell, Jane Prichard, Susan Halford, Jeremy Jones, Carl May and Valerie Lattimer*



**National Institute for  
Health Research**



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# Abstract

## The work, workforce, technology and organisational implications of the '111' single point of access telephone number for urgent (non-emergency) care: a mixed-methods case study

Joanne Turnbull,<sup>1\*</sup> Catherine Pope,<sup>1</sup> Alison Rowsell,<sup>1</sup> Jane Prichard,<sup>1</sup> Susan Halford,<sup>1</sup> Jeremy Jones,<sup>1</sup> Carl May<sup>1</sup> and Valerie Lattimer<sup>2</sup>

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**Background:** NHS 111 represents a fundamental change in the way that urgent care is delivered. It is underpinned by a computer decision support system (CDSS) and involves significant labour substitution, in particular the greater use of non-clinical staff to deliver services.

**Objective:** To investigate four core features of health-care innovation and change in relation to the new NHS 111 telephone-based service for 24/7 access to urgent care, namely the way in which *work* and *workforce* are organised for this new service and how the *technology* and *organisational context* shape the way in which services are delivered.

**Design:** Comparative mixed-methods case study of NHS 111 providers.

**Settings:** Five NHS 111 sites, characterised by differences in organisational size, form and ethos and in the type of workforce employed and professional roles and skill mix.

**Methods:** The study combined ethnographic and survey methods. Non-participant observation was conducted at NHS 111 call centres and their linked urgent care centre(s) (UCCs; a total of 356 hours). Six focus groups were conducted with 47 call advisers, clinicians and organisational managers. An online survey was administered to call centre and UCC staff ( $n = 745$ ) to ask their views about NHS 111; trust in NHS Pathways; and communication and information sharing (response rate: 41% for call centre staff, 35% for UCC staff).

**Results:** Clinical assessment by call advisers is characterised by high levels of communication (including negotiation, communication and translation) and 'emotion' work, extending the work beyond simple operation of a CDSS. At most sites clinical advisers supported call advisers in clinical assessment but also played an important role in managing and sanctioning dispositions, notably emergency ambulance dispositions. Clinicians at UCCs have experienced a loss of control over their everyday work, which is now shaped by call centre workers. The Directory of Services, which provides information about locally available services, is key to delivering an integrated urgent care system. Trust in the CDSS is higher amongst call advisers than amongst clinical staff but there is widespread belief that the CDSS is risk averse. Staff often develop workarounds to 'make the technology work'. There is considerable variation in how NHS 111 is organised and delivered, shaped by the organisational history and the professional culture of the organisations involved. Some sites were driven more by rationing and systemising, pursuing the NHS 111 vision of 'right care, right place, right time', whereas others were driven more by an ethos of what they perceived was a more patient-centred service.

**Conclusions:** NHS 111 is primarily founded on a network of different organisations providing different aspects of the service. This network is primarily enabled through technological integration. Successful integration also requires understanding and trusting relationships between different providers, which were lacking in some sites. Underpinning NHS 111 with non-clinical workers offers significant opportunities for workforce reconfiguration, but this is not a simple substitution of labour (i.e. non-clinical staff replacing clinical staff). There is a significant organisational structure that is necessary to support and 'keep in place' both the CDSS itself and non-clinical workers using the CDSS.

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## List of abbreviations

A&E	accident and emergency	GP	general practitioner
CallA	call adviser	ICT	information and communication technology
CallS	call supervisor	MDS	minimum data set
CCG	clinical commissioning group	NIHR	National Institute for Health Research
CDSS	computer decision support system	NP	nurse practitioner
ClinA	clinical adviser	PCT	primary care trust
CMgr	call manager	PRP	Policy Research Programme
CMS	Capacity Management System	SMgr	senior manager
DN	district nurse	UCC	urgent care centre
DoS	Directory of Services	VDU	visual display unit
ECP	emergency care practitioner		
ED	emergency department		





# Scientific summary

## Background

NHS 111 is a new, telephone-based service, available through a three-digit number (111), that allow callers to access urgent health care 24 hours a day. It offers clinical telephone assessment (triage), advice and referral when necessary to an appropriate health-care provider. To date, all NHS 111 services are underpinned by a single computer decision support system (CDSS) called NHS Pathways. Trained non-clinical call advisers answer telephone calls to the service and use this technology to support questioning to assess a patient's symptoms, provide health-care advice or direct the patient to the appropriate local service. The NHS 111 service represents a large-scale and fundamental change in the way that urgent care is delivered. It is predicated on the use of new digital technologies and significant labour substitution, in particular the greater use of non-clinical staff to deliver health services. It seeks to integrate a range of different health services in the context of an increasingly complex landscape of health services and significant increases in demand for health care.

Our previous National Institute for Health Research Service Delivery and Organisation programme project 'Ethnography and survey analysis of a computer decision support system in urgent out-of-hours, single point of access and emergency (999) care' (reference no. 08/1819/217), published in 2011, highlighted the importance of effective workforce planning, management and training in the successful implementation and continued use of the CDSS that underpins NHS 111. It shed light on the 'work' and effort required to bring a CDSS into successful use in a similar service setting. The current follow-on project extends what we have learnt in the context of the roll-out of the NHS 111 service. The study was designed to complement the Policy Research Programme-funded University of Sheffield evaluation of NHS 111 and to focus on how the NHS 111 service changes the organisations that deliver it and the wider organisation of health care, notably the implications for work, workforce configuration and training.

## Objectives

NHS 111 has provided a timely opportunity to empirically investigate four core features of health-care innovation and change, namely the way in which work and workforce is organised for this new service and how both the technology and the organisational context shape the way in which services are delivered. The aim of our project was to understand the implications of these inter-related aspects for the organisation and delivery of modern health services and inform workforce planning and organisation.

1. *What is the work of NHS 111?* This examined the everyday work tasks and activities involved in delivering the services and integrating care provision.
2. *Who is the NHS 111 workforce?* This examined the experience and skill sets of this new workforce and identified education and training needs of workers and how this workforce might be developed and maintained; and examined role differentiation and division of labour (e.g. how tasks are divided formally and informally between staff).
3. *What is the technology for NHS 111?* This explored the technologies underpinning the service and the complex sociotechnical interactions required to bring them into use, including configuration and use of these technologies.
4. *What is the organisational context of NHS 111?* In order to situate questions 1–3, this examined the organisational effort and environment, to compare and describe structures, practices and service integration within the wider political, sectoral and organisational settings (within NHS 111 sites and the

wider network of providers); explored the extent to which integration has been achieved; identified how information and knowledge are shared across the full range of services integrated by NHS 111; and examined how trust and knowledge transfer varies across the NHS 111 health economy.

## Methods

We addressed these research questions by undertaking a comparative mixed-methods case study in five NHS 111 sites. The different NHS 111 providers were characterised by differences in organisational size, form and ethos and in the type of workforce employed and professional roles and skill mix within it.

Our case study sites were:

- An established emergency call-handling service provided by an ambulance trust (site 1) for two primary care trust areas. Urgent care centres (UCCs) were provided by a separate organisation.
- An established out-of-hours call-handling service run by a general practitioner (GP) out-of-hours service. Local partners operate an integrated UCC (site 2).
- An established emergency call-handling service provided by an ambulance trust (site 3). A local trust operated an integrated emergency department, walk-in centre and out-of-hours centre.
- An established out-of-hours organisation providing both call-handling services and UCCs (site 4).
- A commercial organisation providing call-handling services. Two UCCs were operated by two separate organisations (site 5).

The study combined ethnographic and survey methods. The ethnography used non-participant observation conducted at both NHS 111 call centres and their linked UCC(s). These data comprise 356 hours of observation undertaken between 2011 and 2012. We also conducted six focus groups with 47 call advisers, clinicians and organisational managers.

An online survey, administered to call centre and UCC staff, asked staff about their views of NHS 111 and information transfer and communication and assessed staff trust in NHS Pathways. Three e-mail reminders were sent 2 weeks apart. A total of 216 call centre staff responded to the survey (529 surveys were distributed), giving a response rate of 41%. Site 1 was unable to tell us how many staff the survey was administered to at the UCCs and site 5 did not administer the survey to UCC staff. Excluding these two sites our response rate for UCC staff, based on the other three sites, is 35%.

Ethnographic data were coded independently, analysed jointly in data clinics and imported into Atlas.Ti 6.2 (Scientific Software Development GmbH, Berlin, Germany). We examined data within each setting and then across settings structured around our research questions. We used a mixture of analytical approaches including thematic analysis and matrix/charting techniques to facilitate comparison.

Survey data were exported to IBM SPSS Statistics version 19 (IBM Corp., Armonk, NY, USA). Descriptive statistics were calculated and univariate analysis of variance was applied to the data.

## Results

The NHS 111 service receives calls about a broad range of physical and mental health problems as well as social issues, from life-threatening illnesses to requests for health information. The types of calls received by NHS 111 shape the everyday work for call advisers, clinical advisers and UCC clinicians working within NHS 111 care provision. The everyday work of these groups of staff is distinctive in each site.

## Work

Building on our previous study, NHS 111 call-handling work involves high levels of communication (including negotiation, communication and translation) and 'emotion' work (for the management of potentially life-threatening events and diseases and to establish rapport with the caller, as well as managing their anxiety and distress). In summary, call advisers engage in a range of everyday work activities that extend beyond being simple users of a CDSS to assess calls.

The everyday work of clinical advisers varied from site to site. At all sites (except site 2 where clinical advisers were based at a separate organisation) these staff support call advisers in clinical assessment and they also play an important role in managing and sanctioning dispositions, notably emergency ambulance dispositions. Call supervisors at some sites also played a key role in supporting the call advisers and providing expert NHS Pathways advice. Levels of trust at an organisational level appeared to influence patterns of working so that some call-handling organisations engendered a more autonomous call-handling workforce. Clinicians at UCCs provide further assessment and a consultation, either on the telephone or face to face (at an UCC or at home), and their work is shaped by call advisers, clinical advisers and call supervisors working at the call centre, who determine how many patients are seen, who is seen and how quickly patients are seen by clinicians.

## Workforce

All sites were required to expand their workforce to provide the NHS 111 service, employing new staff and/or reorganising staff to undertake new roles. Commitment to their work was high amongst call advisers and many took particular pride in the health-care nature of their work. At some sites, NHS Pathways and NHS 111 offered the opportunity for career development roles or activities (such as a supervisory, training or auditing role) for non-clinical and clinical workers. Although formal roles exist in each organisation, the boundaries between roles are often blurred. Although call advisers lack clinical training, there is consistent evidence of them performing complex health-care work, albeit supported by the technology. We observed that clinical knowledge gathered from the system and from clinical staff becomes internalised in call advisers who then draw on this knowledge when handling calls. Despite this there are clear beliefs amongst the workforce that input from clinical staff is essential not only for supporting call advisers but also to allow them to take clinical responsibility for more complex calls.

Participation in training can be challenging for call advisers and requires considerable commitment in relation to the amount that they have to learn and also the times that training sessions are run. Ongoing formal and informal coaching was provided at all of our sites through buddying systems, support from call supervisors and clinical staff and feedback from the audit process. However, there is considerable variation across sites in how these activities are performed and by whom, which raises questions about the standardisation of service delivery.

## Technology

We examined the core technologies implicated in the delivery of the NHS 111 service. These included the CDSS used to assess and manage calls and the Directory of Services (DoS) used to locate appropriate services for onward referral when indicated. The DoS is key to the delivery of NHS 111 as it provides call advisers with information about services including location, opening hours and remit. However, the delivery of the services requires additional technologies (such as case record and case management systems and booking systems) and a range of what might be considered peripheral information and communication technologies (ICTs) (including the internet).

Trust in the CDSS amongst call advisers is relatively high, particularly compared with UCC staff. There is some appreciation that the system is risk averse and awareness of some areas in which the pathways are less effective or useful (e.g. multiple symptoms). It appears that GPs and other external stakeholders are less positive about the CDSS than those who use it every day. Turning to the theme of technology failures we noted that the providers have established contingency plans for dealing with major faults, but we also noted that the staff in the call centres work hard to make the technology work, often developing

workarounds that enable this. The survey suggests that staff felt that the systems were largely reliable, although some problems with the DoS were particularly noted.

### **Organisational context**

There is considerable variation in the organisation and delivery of NHS 111, which is shaped by the organisational history, dominant service ethic and professional culture of the varied contracted organisations. Call-handling organisations were motivated by different reasons when bidding for the NHS 111 contract. These reasons included entrepreneurial drivers (such as expanding the size of the business or to grow new business) as well as protective drivers (to defend against threats to existing business and the desire to keep call handling 'in-house').

There is an inherent tension within the NHS 111 service. On the one hand there is a push towards rationalisation and standardisation, but local service providers are strongly pulled towards designing services that are aligned with their service ethic and with their views about what is needed locally. Broadly, the commercial organisation (site 5) and ambulance service providers (sites 1 and 3) were more driven by rationing and systemising – by pursuing the NHS 111 vision of 'right care, right place, right time' – whereas out-of-hours services (sites 2 and 4) were heavily driven by an ethos of providing a service that is more in line with what they provided as out-of-hours organisations. The competitive nature of NHS 111 contracts has presented challenges for organisations delivering NHS 111, with the need to protect themselves against the potential loss of their business. Opportunities for sharing early best practice have been hampered as sites have been less willing to 'open their doors' to potential competitors for fear of giving away their competitive edge.

### **Conclusions**

Each group of workers has a different but integrated role that enables NHS 111 to operate. This integration is not 'seamless' and there are clear frustrations in some areas about the use of non-clinical staff to perform clinical assessments. On the face of it, call centre work is characterised by operating in isolation – working one-to-one with the caller; however, the relationships between call advisers, call supervisors and clinical advisers are a crucial part of managing calls and the overall workload. The ability to engage in effective teamwork is also important both to support colleagues during calls and to provide advice and emotional support following difficult calls. There is some variation in training across sites and in who provides such training. This may have implications for the skills acquired by call advisers and for the degree of confidence that they have to complete calls effectively.

Underpinning NHS 111 with non-clinical workers offers significant opportunities for workforce reconfiguration. However, our findings suggest that there is not a simple substitution of labour (i.e. non-clinical staff replacing clinical staff). A significant organisational structure is in place to support and 'keep in place' the CDSS and the non-clinical workers that use it. The apparent advantage of a non-clinical workforce has to be set against the resources and structures needed to support these types of staff.

NHS 111 is primarily founded on a network of different organisations that provide different aspects of the service (call centre, UCC and so on) and this network is primarily enabled through technological integration (e.g. communication, information sharing). Technological integration is key to delivering NHS 111, most notably NHS Pathways being able to assess the 'right time and right place' for the patient and the DoS containing accurate information about the most appropriate service available locally. Technological integration has been achieved in NHS 111, albeit with staff effort in developing workarounds to 'make the technology work'. However, successful integration requires trust and communication between different providers. Our study revealed that at some sites relationships between different providers in the NHS 111 network were poor and mistrust (of technology and of partner organisations) was high. Much of the communication between different NHS 111 providers was electronic,

with little personal contact between providers. We suggest that technological integration alone is not enough to sustain an integrated service.

Relationships were more harmonious in sites that were co-located and/or that had a history of working together. Time and effort is crucial in promoting shared communication and a more harmonious relationship between partner organisations. NHS 111 imposes an abstracted standardised system on the urgent and emergency health-care system, but our findings suggest that 'place' affects the way in which this standardised system becomes embedded in practice. The way in which NHS 111 has developed in different areas and the diversity of providers, which bring with them different values and history, suggests that NHS 111 is unlikely to be an entirely standardised service across England.

## Funding

The National Institute for Health Research Health Services and Delivery Research programme.



# Chapter 1 Introduction

## Rationale

The NHS 111 service represents a large-scale and fundamental change in the way that urgent care is delivered. It is predicated on the use of new digital technologies (notably, but not only, a computer decision support system – a CDSS – and telephony) and significant labour substitution, in particular the greater use of non-clinical staff to deliver health services. It seeks to integrate a range of different health services in the context of an increasingly complex landscape of health services and significant increases in demand for health care. In addition, it is a complex service innovation that has been introduced at a time of significant system reform. All of these factors make the new NHS 111 service a compelling case study. For us, NHS 111 provided a timely opportunity to empirically investigate four core features of health-care innovation and change, namely the way in which work and workforce is organised for this new service and how both the technology and the organisational context shape the way in which services are delivered. The aim of our project was to understand the implications of these inter-related aspects for the organisation and delivery of modern health services and inform workforce planning and organisation. This report presents a comparative case analysis of NHS 111, focusing on these four aspects of work, workforce, technology and organisation. The remainder of *Chapter 1* explores the background literature and outlines our objectives and approach.

## Urgent care context

Urgent care is typically defined as ‘the range of responses that health and care services provide to people who require – or who perceive the need for – urgent advice, care, treatment or diagnosis’ (p. 12).<sup>1</sup>

It may draw on a wide range of services including general practitioner (GP)- and nurse-led care as well as dentistry and social and mental health acute crisis teams. In England there is a range of specific urgent and unscheduled care services including out-of-hours GP services, minor injuries units, NHS walk-in centres and the telephone service NHS Direct (the national nurse-led telephone service) that come under the umbrella of urgent care. At times urgent care may also overlap or interface with emergency care provided by ambulance services and hospital emergency departments (EDs).

The pressures on both emergency and urgent care health services in the UK have been increasing. Calls to the national 999 ambulance service increased by 3.36 million (42%) between 2002 and 2011.<sup>2</sup> The increasingly fragmented nature of urgent care provision has made it difficult to assess demand but Richards *et al.*<sup>3</sup> reported a 26% increase in out-of-hours calls following the introduction of the new general medical services contract in 2004 [an agreement between general practices and primary care trusts (PCTs)].<sup>4</sup> Calls to NHS Direct have increased by 20% every year since its introduction in 1997.<sup>5</sup> There continue to be debates about the appropriateness of service use. For example, in 2011–12, 4.17 million 999 calls (37.9%) were classified as category C (presenting conditions that are not immediately serious or life-threatening), which may be considered ‘urgent’ or non-emergency rather than emergency cases.<sup>2</sup> Government policy has sought to tackle rising demand whilst simultaneously aiming to improve services and reduce costs.<sup>6,7</sup> Workforce reconfiguration and digital information and communication technologies (ICTs) are seen as key tools in achieving these ends.

The need to better integrate urgent and emergency care services has long been recognised. The Carson review of out-of-hours care<sup>8</sup> argued for geographical integration of out-of-hours services to manage urgent care more effectively, improve access and thereby increase patient satisfaction. The report was

followed by a pilot that used the NHS Direct telephone triage and advice service to integrate out-of-hours urgent and emergency care,<sup>9</sup> although this model failed to be widely adopted.

Six years on from the Carson review, a National Audit Office report<sup>10</sup> concluded that urgent care continued to be characterised by a widely divergent market with multiple providers, leading to understandable confusion on the part of the public. More recent government reports and consultation confirmed this view.<sup>6,11</sup> The NHS 111 service has been proposed as a solution to this problem by providing a centralised, efficient, recognisable entry point to the NHS which can co-ordinate and integrate services to connecting patients to 'the right place, first time'.

## The NHS 111 service

NHS 111 is a new telephone-based service that allows callers to access urgent health care 24 hours a day. It has been publicised as a service for patients to call 'when it's less urgent than 999'<sup>12</sup> and it is targeted at callers who:

- need 'medical help fast' but the problem is not life-threatening
- are unsure about what service they need
- need to access care out of hours
- 'don't have a GP to call'
- need health information or reassurance about what to do next.

NHS 111 offers clinical telephone assessment (triage), advice and referral when necessary to an appropriate health-care provider. To date, all NHS 111 services are underpinned by a single CDSS technology, NHS Pathways (see <http://systems.hscic.gov.uk/pathways>). Trained non-clinical call advisers answer telephone calls to the service and use this CDSS to support questioning to assess a patient's symptoms, provide health-care advice or direct the patient to the appropriate local service. The NHS Pathways assessment concludes with a 'disposition', which sets out the level of clinical care required and the time frame in which it must be accessed. Possible referrals (dispositions) include to accident and emergency (A&E), an urgent care centre (UCC), an out-of-hours GP, a NHS walk-in centre and an emergency dentist or pharmacist, and NHS 111 call-handling staff can directly book appointments with some of these. If necessary, calls resulting in an ambulance disposition are directly routed to 999 services. NHS Pathways was piloted in an emergency (999) ambulance service and a primary care out-of-hours telephone service. It is currently licensed for use by NHS ambulance services for the management of 999 calls and the safety and accuracy of the CDSS has been evaluated in this setting.<sup>13</sup>

The landscape of urgent and emergency health-care provision is changing as a result of health-care reorganisation, which has altered both service commissioning and the range of providers in the sector. From April 2013 clinical commissioning groups (CCGs) directly commission these health services. CCGs can commission services that they consider 'appropriate to meet reasonable local needs' and from providers who are best placed to deliver the needs of their patients and populations. Services can be provided by 'any qualified provider' from the public, private or third sector (p. 4).<sup>14</sup>

### The roll-out of the NHS 111 service

Four NHS 111 pilots were commissioned by the Department of Health and implemented in 2010, overseen by a national programme board and strategic health authorities. These pilots were delivered by an ambulance-led service in County Durham and Darlington PCT and three NHS Direct-led services in Nottingham City PCT, NHS Lincolnshire and NHS Luton. The Department of Health commissioned a Policy Research Programme (PRP)-funded evaluation of service activity and costs and patients' perspectives of the four NHS 111 pilots (University of Sheffield, project number 049/0016, completed November 2011),<sup>15</sup> which is described in more detail in *Chapter 7*. A 'second wave' of pilot sites was launched during 2010 and 2011 with the goal that NHS 111 would be in place across England by April 2013. In June 2012 it



was announced that organisations would be allowed an additional 6 months to implement NHS 111 in their locality<sup>16</sup> and that the new service would replace the NHS Direct 0845 4647 telephone number.<sup>17</sup> The key difference between NHS Direct and NHS 111 is that NHS Direct was conceived as a nurse-led health information and advice line (although it did also direct calls to other services when appropriate) whereas NHS 111 is conceived as a service that provides a single point of access to non-emergency care, staffed by call advisers and supported by nurses. Unlike NHS Direct, the '111' number is free to call.

## How this research builds on our previous research

Our previous National Institute for Health Research (NIHR) Service Delivery and Organisation programme project 'Ethnography and survey analysis of a computer decision support system in urgent out-of-hours, single point of access and emergency (999) care' (reference no. 08/1819/217),<sup>18</sup> published in 2011, highlighted the importance of effective workforce planning, management and training in the successful implementation and continued use of the CDSS that underpins NHS 111. It shed light on the 'work' and effort required to bring a CDSS into successful use in a similar service setting. We showed the potential for the CDSS to intensify the work of call-handling, and demonstrated the complex relationship between expertise and experience required for using CDSS on a day-to-day basis.

The current follow-on project extends what we have learnt in the context of the roll-out of the new national single point of access NHS 111 service. The study was designed to complement the PRP-funded University of Sheffield evaluation of NHS 111<sup>15</sup> (see *Chapter 7*) and to focus on how the NHS 111 service changes the organisations that deliver it and the wider organisation of health care, notably the implications for work, workforce configuration and training.

## Aims

Our aim was to examine the work, workforce, technology and organisation required to deliver the national integrated three-digit number ('111') single point of access to urgent (non-emergency) care services. We addressed the following research questions by undertaking a comparative mixed-methods case study approach to understand the implications of these inter-related aspects of the new service in order to inform the organisation and delivery of modern health services.

## Research questions

1. *What is the work of NHS 111?* This examined the everyday work tasks and activities involved in delivering the services and integrating care provision.
2. *Who is the NHS 111 workforce?* This examined the experience and skill sets of this new workforce and identified education and training needs of workers and how this workforce might be developed and maintained; and examined role differentiation and division of labour (e.g. how tasks are divided formally and informally between staff).
3. *What is the technology for NHS 111?* This explored the technologies underpinning the service and the complex sociotechnical interactions required to bring them into use, including configuration and use of these technologies.
4. *What is the organisational context of NHS 111?* In order to situate questions 1–3, this examined the organisational effort and environment, to compare and describe structures, practices and service integration within the wider political, sectoral and organisational settings (within NHS 111 sites and the wider network of providers); explored the extent to which integration has been achieved; identified how information and knowledge are shared across the full range of services integrated by NHS 111; and examined how trust and knowledge transfer varies across the NHS 111 health economy.

## Theoretical approaches

Our previous study used normalisation process theory.<sup>19</sup> For the current study, although the theoretical constructs of normalisation process theory were helpful in addressing the four research questions, we found that it was more helpful to draw on other expertise across the research team in analysing the data. This included, but was not confined to, insights from science and technology studies about networks and in particular the relationship between technology and human actors,<sup>20,21</sup> and insights from social psychology around trust and team work, which informed the survey design and analysis.<sup>22,23</sup> These theoretical ideas have informed our analyses and will be drawn on in further outputs from this study. We agreed that it was less appropriate to structure this report around particular theoretical constructs and instead we have used the four research questions to organise this report.

## Outline of the report

The remainder of this report is structured around our four research questions. *Chapter 2* details our methodological approach and describes the research study sites. *Chapters 3–6* present our findings based around our research questions (on work, workforce, technology and organisation). *Chapter 7* reports the workshop that we held to discuss and integrate the findings of this project with the findings of the Sheffield PRP-funded evaluation<sup>15</sup> and *Chapter 8* concludes the report and explores the implications of this work for future research.

# Chapter 2 Methodology

## Introduction

In this study we used a detailed, comparative mixed-methods case study to understand the inter-related aspects of work, workforce, technology and organisation associated with NHS 111 with the aim of informing the provision of 24-hour urgent care. At the time of our research funding application, we had intended to explore our research questions in the three pilot sites delivering NHS 111 services. These three sites covered three distinct geographical areas. However, for reasons detailed in the following section we increased the number of sites from three to five (see *Appendix 1*). We used survey and qualitative methods to collect our data. Specifically, we used ethnography (comprising observation, informal interviewing and focus groups) to explore everyday work, workforce configuration and organisational contexts and an online survey to examine staff views about NHS 111, the technology and information sharing between NHS 111 service providers.

## Selecting case study settings

Following the launch of four NHS 111 pilot sites in 2010, at the start of our study in August 2011 we were aware that four 'second-wave' sites had been commissioned to provide a NHS 111 service and planned to launch during 2011. This offered us a wider choice of settings and organisational models from which to sample. The different NHS 111 providers were characterised by differences in organisational size, form and ethos and in the type of workforce employed and professional roles and skill mix within it. With regard to location they varied in terms of spatial and population characteristics and in the extent to which emergency and urgent care services were co-located. We discussed the choice of sites in the research team and with our advisory group (see *Appendix 2*). This larger number of possible sites offered the opportunity to explore the implications, benefits and challenges across very different organisational models that include both private and social enterprise providers as well as different NHS organisations. Guided by our discussions with the advisory group we agreed that our main criteria for the selection of case studies should be to maximise variation in type of NHS 111 providers (public/private/social enterprise and different types of NHS trusts) and to reflect geographical variation by including a mix of north and south and urban and rural locations.

In light of the above, five sites providing NHS 111 services in 2011–12 were chosen as case studies rather than three, as suggested in the proposal. We felt that this both was practically manageable and offered the combination of familiarity and detailed understanding of local context and the opportunity to provide systematic analytical and theoretical generalisation.<sup>24</sup> We focused our attention on two core activities of NHS 111 services, namely call handling and UCC provision. This was in part a pragmatic decision as we did not have the resources to examine all of the possible providers of urgent and emergency care services (e.g. late-night pharmacies or emergency dental services). We were also mindful that UCCs received the highest proportion of referrals from NHS 111 (in the form of either transfers for telephone consultation or face-to-face consultation at the centre or requests for a GP home visit). Each case study site described in this report therefore includes both the NHS 111 call-handling centre and its linked UCC(s).

The study combined ethnographic and survey methods and is described in more detail in the following sections.

## Ethnography

The ethnographic component of the study included direct observation of staff at call centres and at UCCs, informal interviewing of staff at these locations and a series of focus groups with staff and key stakeholders. This part of the project aimed to provide a detailed, nuanced understanding of the everyday work, workforce configuration and roles, technology and wider contextual factors in each setting. Our previous research<sup>18</sup> looking at the same telephone call-handling decision support system in the context of emergency and urgent care using the same methods informed this aspect of the study.

### *Non-participant observation*

The ethnographic component of the project addressed all four research questions (see *Chapter 1, Research questions*). Given the time scale of the project (15 months) we employed a rapid ethnographic approach characterised by a range of data collection methods to provide an understanding of actors and activities in a given (short) time frame. This meant sticking closely to the focus of the research (driven by the research questions), making effective use of key informants and capturing rich field data by using multiple observers and interactive observation techniques, and undertaking collaborative qualitative data analysis.<sup>25</sup> It should be noted, however, that the work in this project builds strongly on our earlier work,<sup>18</sup> which included some 500 hours of observation of call advisers and clinical advisers engaged in similar work in call centres.

Observation in each setting was designed to capture activity at different times of the day/days of the week, including day shifts, evenings, nights and weekends. The total number of observation hours at each site varied depending on the complexity of local organisation and work practices, and at two sites we undertook slightly less observation. These were sites that took part in our previous project (sites 1 and 2). An orientation visit by research team members was undertaken at each site that we had not previously worked with, to outline the project and negotiate access with key staff. In undertaking observational work one researcher visited the site at any one time. Much of the observation was undertaken by AR, but JT, JP, SH and CP also undertook some observation. Researchers closely observed staff engaging in their everyday work and how they interacted with each other and the technology. The data collection built on our previous work in which the focus was limited to staff use of the CDSS (primarily non-clinical call advisers). This project included detailed observation of a wider range of staff and a wider range of clinical activity involved in the provision of NHS 111 services compared with the previous project. We focused on UCC activity as well as call-handling activity and on clinicians as well as call advisers.

With permission the researcher usually focused on one member of staff (see *Appendix 3* for the participant information sheet). At call-handling sites the researcher typically sat alongside three to four different members of staff on a given shift (a period of 2 hours per staff member) to observe what they do. The focus was both on call advisers using the CDSS and how a call disposition was made and on clinical advisers/supervisors within the call-handling site. We were also interested in the interaction and division of labour between these staff roles. Observation was also undertaken at UCCs as a large proportion of dispositions go to the UCC. Activity was more varied in UCC settings because UCCs differed in their size, organisation and range of activities. Observation was undertaken of clinical staff undertaking telephone consultations and patterns of activity in communal areas (receptions, nurses' stations, waiting rooms) and also involved travelling in cars with drivers and GPs. Observation did not include any face-to-face consultations with patients. In both call centres and UCCs we looked at interactions between staff, technologies in use and the settings, including networks and relationships, integrated working, routines, everyday processes, and workload and content.

During quieter periods the researcher sometimes discussed the work of staff members informally or joined in conversations. These informal conversations were used to augment and to help to understand what was being observed. Specifically, the purpose of these conversations was to (1) enable the researcher to check with staff that what was observed has been accurately understood/interpreted and (2) understand the nature of everyday NHS 111 work. At busy periods there was not always the opportunity to engage staff

in conversation. Observation was performed without audio or video recording. Detailed notes were taken during the observation period and transcribed soon afterwards. Field notes described the everyday work of the staff involved in delivering the NHS 111 service, as well as their opinions about NHS 111 and any other relevant background information. Notes – including verbatim or near-verbatim statements – were, for the most part, taken overtly in the setting, forming an outline from which more detailed notes were written up afterwards. Details about the staff, the nature of the calls and the triage process were anonymised.

The observation was structured to capture activity at different times of the day and days of the week but primarily focused on busier times of the day, the 'out-of-hours' period of evenings and weekends. Observation covered all or part of a shift depending on the setting (typically 6 hours at a time). Ethnographic data consisted of a total of 356 hours of observation conducted over 10–14 days at each site (*Table 1*).

### Focus groups

In total, six focus groups were undertaken with staff and key stakeholders from across the NHS 111 service network, one each at sites 1–3 and 5 and two at site 4. Focus groups addressed different aspects of all of the research questions and focused on how NHS 111 had changed the nature of the work, the impact that it had had on the organisations and the barriers to and facilitators of NHS 111 for work, workforce and organisation. Focus groups consisted of six to nine individuals. The precise focus of the focus groups was informed by the observational work and by the roles of the participants. A topic guide was prepared for facilitating focus groups but this allowed flexibility to explore issues that arose from the participants (see *Appendix 4*). Potential participants (staff and key stakeholders) were identified following periods of observation in each site. Participants included a range of staff in different job roles (call advisers, clinicians and managers) but were primarily from call centre organisations (*Table 2*). Before each focus group

**TABLE 1** Observational data collection: hours, days and time period of data collection by setting

Site	No. of hours	No. of days	Time period
1	60	10	October 2011–May 2012
2	60	10	December 2011–January 2012
3	72	12	February–June 2012
4	82	14	April–May 2012
5	82	14	July–October 2012
Total	356	60	October 2011–October 2012

**TABLE 2** Focus groups: number of groups and participants

Site	No. of focus groups	No. of participants	Professional roles of participants
1	1	7	Call advisers, call supervisors, trainers, clinical adviser
2	1	9	Call advisers, trainer, auditor, manager
3	1	8	Call advisers, call supervisor, UCC administrator, manager, clinical adviser, district nurse, patient/lay adviser
4	2	14 (7 per group)	Call advisers, call supervisors/managers (group 1); clinical advisers, nurse practitioners, GP, senior managers (group 2)
5	1	9	Call advisers, trainee call advisers, trainer, clinical advisers
Total	6	47	

commenced the researcher explained the study and consent form, seeking written consent to conduct the focus group (see *Appendices 3 and 5*) and digitally record and subsequently transcribe the focus group interview. Assurances were given about confidentiality of the recording and anonymity of the transcript. All of the focus groups were recorded and typically they lasted between 1.5 and 2 hours. Two members of the research team conducted each focus group (one as a moderator/facilitator and one as an observer/assistant).

### **Analysis of ethnographic data**

Observational data and interview data were analysed together. A sample of field notes and focus group transcripts was read and open coded independently by SH, CP, JP, AR, SB and JT. The codes were discussed in data clinics and refined. Transcripts and field notes were imported to Atlas.Ti 6.2 (Scientific Software Development GmbH, Berlin) and coded to facilitate data management and retrieval. We held six data clinics to discuss emerging codes, explore themes of interest and develop our interpretations. As the study progressed the analysis was structured to examine all of the data within each setting and then across the settings using the research questions and four key aspects of the study (work, workforce, technology, organisational context). Data clinics were organised around sets of observational or interview data read in advance. We also used matrix/charting techniques to facilitate comparison and had ongoing discussions with the wider team and the advisors to check our interpretations.

## **Survey**

### **Design of the survey and sample**

The survey first collects some basic information about job role and length of time working at the organisation and with NHS Pathways and is then divided into three key sections (see *Appendices 6 and 7*). The first part of the survey includes nine questions that ask staff about their views of NHS 111 as well as their views on how it affects demand for urgent and emergency care. These questions were primarily developed based on policy material about the aims of NHS 111 (e.g. to promote easier access). The second part of the survey includes nine questions about information transfer and communication, including questions about technological information sharing and communication between NHS 111 providers. These questions were derived primarily from our ethnography work. The third part of the survey consists of 10 questions to assess staff trust in NHS Pathways. The first seven of these questions relate to the technology itself and the remaining three to the interactions between the technology and staff. These questions about the technology were based on an earlier survey conducted in our previous work.<sup>18</sup> Finally, we asked respondents an open question about their views of NHS 111, which allowed them to provide any additional comments or elaborate on aspects related to the survey. All items in the three main sections of the survey were measured on a 5-point scale (1 = 'strongly disagree', 5 = 'strongly agree').

The survey was piloted with five NHS 111 call advisers in one site who discussed the face and content validity of the survey. The call advisers were asked to comment on the length, readability and content of the survey. Following piloting some changes were made, notably the inclusion of additional questions and rewording of some of the items.

We aimed to include a range of staff at call centres (including call advisers, call supervisors and clinical advisers) and at UCCs [GPs, nurse practitioners (NPs), emergency care practitioners (ECPs), managers and administrative staff when applicable]. To some extent we were reliant on managers at sites to identify who they felt it would be most appropriate to send the survey out to as the survey might not be directly relevant to everyone who works within that organisation. The survey was administered online. An e-mail that included a web link to the survey was sent to staff by a manager at each site; this was accompanied by a participant information sheet (see *Appendix 6*). Managers at each site sent three follow-up reminder e-mails to staff, 2 weeks apart. To maximise response rates we also offered sites paper copies of the survey

for staff who would rather complete the survey in this way. A small number of respondents returned paper copies to us in a Freepost return envelope.

### Response rate

The survey was administered to 529 staff at call centres and 216 replies were received, giving a response rate of 41% (Table 3). There was considerable variation in response rate between sites, with the lowest response rate at site 1 (28%) and the highest at site 3 (70%). With regard to UCCs, site 1 was unable to tell us how many UCC staff the survey was administered to and site 5 did not administer the survey to UCC staff. Therefore, our response rate for UCCs is calculated based on sites 2, 3 and 4. At these sites the survey was administered to 194 staff and yielded a response rate of 35%. The nature of online surveys and limits of research ethics approval were such that we were not able to collect information about non-responders.

### Analysis of survey data

Data from the online survey were directly exported as CSV files (which included all completed surveys). Any paper versions of completed survey were double entered in Microsoft Excel (2010; Microsoft Corp., Redmond, WA, USA), checked and corrected. Data were then exported into IBM SPSS Statistics version 19 (IBM Corp., Armonk, NY, USA) and descriptive summary statistics were calculated.

Questions relating to information transfer and communication (Q13–21) and questions about the monitoring of non-clinical call advisers (Q29), need for clinical support for of non-clinical call advisers (30) and the ability of non-clinical call advisers to perform their role safely (Q31) were analysed individually. The nine questions that asked staff about their views of NHS 111 were grouped into two composite variables: whether staff felt that NHS 111 was 'good for patients' (average of Q4–6 and 11) and whether staff felt that NHS 111 was effective in dealing with the demands on health providers (average of Q7–10 and 12). Reliability analysis using Cronbach's alpha was performed on each composite variable and revealed high internal consistency ( $\alpha = 0.86$  and  $0.92$  for 'good for patients' and 'manages demand' respectively). In relation to Q22–28 about trust in the technology, responses were averaged to generate an overall score. Reliability analysis revealed high internal consistency ( $\alpha = 0.95$ ).

The survey data were then analysed across sites for each individual variable or composite variable as detailed above using univariate analysis of variance. In addition, each variable was further analysed dependent on whether the respondent was a clinical or a non-clinical member of staff and also dependent on whether the staff member was located in the call centre or in an UCC. Significant effects, when they occurred, are detailed throughout the report.

**TABLE 3** Survey response rate

Site	Call centre staff	UCC staff
1	32/115 (28%)	21/not known <sup>a</sup>
2	25/48 (52%)	17/43 (40%)
3	32/46 (70%)	28/80 (35%)
4	85/237 (36%)	23/71 (32%)
5	42/83 (51%)	NA <sup>b</sup>
Total	216/529 (41%)	68/194 (35%) <sup>c</sup>

NA, not applicable.

a Data on who the survey was administered to at site 1 UCCs are not available.

b Site 5 did not administer the survey to UCC staff.

c Total based on the sites with available data (i.e. excludes sites 1 and 5).



## The case study sites

The case study sites included different models of NHS 111 service provision (Table 4). There were some key organisational differences including:

- *The type of organisation that provided call handling.* Two sites (sites 1 and 3) were ambulance services, two (sites 2 and 4) were out-of-hours organisations and one (site 5) was a commercial provider. Our study did not include a NHS Direct-led service.
- *Length of experience using NHS Pathways and providing NHS 111.* Sites 1 and 2 had considerable experience of NHS Pathways prior to the launch of NHS 111 and were two of the earlier sites to pilot NHS 111. In comparison, site 5 was relatively new to NHS Pathways and NHS 111 during the course of our study.
- *The size of population covered,* ranging from approximately 140,000 to 760,000.
- *The existence of UCCs.* UCCs existed in all sites. The number (and location) of UCCs reflected the size of the population and urban/rural geography. UCCs at sites 1, 3 and 4 were open to walk-in patients as well as NHS 111 referrals. In site 4 the call-handling organisation also operated the UCCs.

There was some variation in workforce roles at each site (Table 5). All of the sites except for site 2 had call advisers, call adviser supervisors and clinical advisers; in site 2 the clinical advisers were employed by a different organisation in a different location. Site 2 based its GP telephone consultation role at the call centre rather than at the UCC. All services had links with district nursing teams remotely, but site 3 additionally based a district nurse at the call centre during the out-of-hours period. Call advisers are referred to by different titles at different sites, such as health advisers, call assessors and call advisers. For consistency we will refer to this role as call adviser (in line with the Department of Health description).<sup>12</sup> At some sites clinical advisers are also referred to as clinical support desk (CSD) practitioners and nurse advisers. For consistency we will refer to these staff as clinical advisers.

**TABLE 4** Organisational characteristics of the study sites

Characteristic	Site 1	Site 2	Site 3	Site 4	Site 5
Start date <sup>a</sup>	August 2011	November 2011	May 2011	November 2011	March 2012
Location	North-east	North-west	South	Midlands	South
Geography	Urban city/town	Urban town	Urban town and rural	Urban city/town and rural	Urban city
Population	600,000	140,000	140,000	760,000	250,000
Call-handling provider organisation	Ambulance foundation trust	GP-led out-of-hours organisation (part of larger consortium)	Ambulance trust	GP-led out-of-hours organisation	Commercial provider
No. of call centres	2	1	1	2	1
No. of UCCs	6 (3 are also WICs)	2	1 (integrated with ED and WIC)	8 (4 open to walk-in patients)	2
Co-location of services	Call centre and 999 service co-located; UCCs are separate	Call centre and GP telephone advice service co-located; UCC and nurse advice service separate	Call centre, 999 service and district nursing service co-located; separate from UCC	One call centre separate and one co-located with an UCC	Call centre is co-located with one UCC

WIC, walk-in centre.

<sup>a</sup> Start date of the NHS 111 service 'going live'.



TABLE 5 Workforce roles at call centres and UCCs

Workforce role	Site 1	Site 2	Site 3	Site 4	Site 5
Call centre roles					
Call adviser	✓	✓	✓	✓	✓
Call supervisor	✓	✓	✓	✓	✓
Clinical adviser	✓	Not on site	✓	✓	✓
District nurse			✓		
UCC clinical roles					
GP	✓	✓	✓	✓	✓
ECP	✓			✓	
NP				✓	
Pharmacist		✓			

At UCCs all sites employed GPs to provide telephone consultations as well as face-to-face consultations at the centre and home visits. At sites 1 and 4 ECPs worked alongside GPs in this role and undertook similar duties to GPs. Site 4 also employed NPs in a similar role.

In *Chapters 3–6* the results of the ethnographic data collection (observation and focus groups) and the survey findings have been combined. The following abbreviations are used in the presentation of the qualitative data to indicate sources:

- CallA – call adviser
- ClinA – clinical adviser
- CallS – call supervisor
- CMgr – call manager
- DN – district nurse
- ECP – emergency care practitioner
- GP – general practitioner
- NP – nurse practitioner
- SMgr – senior manager.



## Chapter 3 Results: what is the work?

In this chapter we explore the nature of everyday work tasks and activities involved in delivering NHS 111 services. We first describe the nature and type of calls received by the NHS 111 service before examining the everyday tasks and activities of different groups of NHS 111 workers including call advisers, clinical advisers and UCC clinicians.

### Types of calls received by the NHS 111 service

Many calls made to the NHS 111 service were about symptoms that included coughs, colds, sore throats, rashes, fever, sprains, headaches, abdominal pain, vomiting and diarrhoea. Typically, staff reported higher volumes of calls from certain populations, such as parents of young children and more elderly patients, consistent with the literature on out-of-hours and unscheduled care.<sup>26</sup> Calls were received about a broad range of issues including requests for health information (e.g. contraception advice or medication advice) or a repeat prescription. Staff at some sites, particularly those who had previously provided a single point of access or out-of-hours service (sites 1 and 4), believed that the introduction of NHS 111 had generated calls about a broader range of issues. Staff perceived that this was also the result of changes in patients' expectations of health services more generally:

*[It's] changed quite a lot, now we've took 111 on . . . We get a lot of calls now for patients just wanting a bit of information and advice . . . how to take some medications . . . Before, we just basically helped people who were unwell. Now, it's help and advice . . . it's a lot different to how it used to be.*

*CallA4, focus group, site 4*

*People want more immediate . . . help now. People are going to come up to [UCC] to get a bottle of Calpol on prescription free of charge [rather] than pay £2.50 or whatever . . . at [the pharmacy], aren't they?*

*CallS1, focus group, site 3*

Health-care professionals and other services also called NHS 111 to obtain appointments for patients in their care or to seek advice, including calls from nursing or residential care, usually by a nurse or a care assistant/manager. When calls are made by a qualified health professional the patient is not triaged; instead, a decision is made about the type of care and speed of response needed. Other calls are received from the probation service, the police service, social services and paramedics or other health professionals. Site 4 had an alternative, dedicated number for patients who had identified chronic or palliative care needs, with calls answered by NHS 111 staff but referred directly to a clinician for assessment.

Call advisers and clinicians alike spoke of the prevalence of calls concerning 'social problems' or mental health problems, with callers seeking reassurance or a friendly ear to talk to. Once a medical need is ruled out, call advisers may provide unscripted reassurance or support (i.e. not prompted by NHS Pathways), relying on their communication skills and experiential knowledge. These types of call were sometimes from 'repeat' callers to the service:

*So you are getting a bit angry are you? Have you done anything? So you are having a few problems with your ex-girlfriend. Let's just take a few details and we can get you some care [. . .] Have you got people you work with on this feeling angry? Have you spoken to them?*

*CallA20, observation, call centre, site 1*

*[There is a call] from a female repeat caller. She has already made three 111 and 999 calls today and was attended earlier by an ambulance. The clinical adviser says 'put it through as a doctor [disposition] . . . we can't keep sending crews'.*

*Observation, call centre, site 3*

Staff suggested that the general public are sometimes confused about when to telephone NHS 111, for example using 111 rather than 999 or vice versa or not being clear what NHS 111 is for. A range of factors is likely to influence a patient's decision to call NHS 111, but staff believe that the way in which NHS 111 is advertised could create additional demand, exacerbated by '111' being a free telephone number:

*One of the biggest hang ups with 111 is the poster; it is kind of like creating a need; 'if you need medical help fast call 111'; what does that mean?*

*CallA3, observation, call centre, site 4*

At all sites the NHS 111 service received calls from people who reported that they were unwilling or unable to obtain an appointment at their GP surgery or, in some cases, with their dentist. Patients were sometimes confused by the fact that NHS 111 is a 24/7 urgent care number but they were often advised only to try telephoning their GP again, or to attend the local walk-in centre when one was available. This may also be exacerbated by GP surgeries encouraging patients to call 111 when same-day appointments were not available, as well as transferring calls to NHS 111.

*When CallA1 finishes the call she says [with sarcasm], 'they're good these doctors surgeries! This guy phoned up for a visit and was told by the surgery, "we can't get someone out now, so phone out-of-hours" '.*

*Observation, call centre, site 2*

*The clinical adviser says that there are a number of patients who are 'working the system' – i.e. bypassing routine general practice and presenting to 111 instead.*

*Observation, call centre, site 4*

All sites suggested that some GP surgeries are advising patients to use NHS 111 during the daytime as an alternative, causing tension between those working within NHS 111 (call advisers, clinical advisers and GPs) and those working at GP surgeries. At least two sites (sites 1 and 4) now routinely record all reports that patients have been advised to phone 111 by their GP practice as well as those surgeries that transfer their telephones over to the 111 number early. Some sites were keen to see greater integration with GP surgeries, including being able to book routine GP appointments, but recognised that many surgeries would be reluctant to do this.

*The GP tells CallA19 about a GP surgery 'that were refusing patient appointments from 5 pm and saying they were going in an hour and to phone 111'. The GP appeared quite angry: 'it's wrong'.*

*Observation, call centre, site 2*

*CMgr2: The surgeries are . . . not joined for us to be able to follow the call all the way through. I've just had a call now, where a patient couldn't see their doctor for two weeks [. . .] A lot of the patients are using the 111 service purely because they can't get what they need from their doctor's surgeries. So they don't even attempt the doctors' surgeries . . . they go via 111 to start with, thinking that they're going to get more out of 111 than they are . . . then it's not the case, because we can't offer them anything at the end of the disposition.*

*CallA3: I've had this said to me, particularly at weekends or on a Friday, 'well, if I ring you, I know that I'm going to be seen . . . because I know that if I wait 'til Monday morning, I'm never going to be seen'.*

*CallA4: That's misuse of the service, though, isn't it?*

*CMgr2: It is . . . misuse but . . . we're always going to generate that.*

*CallA4: But some patients wait, don't they? They're at work . . . they wait till they get in, and then . . . So . . . that's all changed.*

*CallA1: They've got a good service from us in the past, they'll use us all the time, because you're not going to get good service from your doctor, are you? You know that. You can ring us, we assess them, takes six minutes, they've got an appointment within the half an hour, and they're happy, aren't they, really, because they think 'this is great; I'm going to come here again'.*

*Focus group, site 4*

In summary, the NHS 111 service receives calls about a range of issues that are broader than urgent care and some staff are concerned that the NHS 111 service may have increased the number of 'non-urgent calls' (compared with out-of-hours services). There is some confusion for some patients about the purpose of NHS 111 and what it can be expected to offer. The types of calls received by NHS 111 shape the everyday work for call advisers, clinical advisers and UCC clinicians working within NHS 111 care provision.

## What is the work of call advisers?

Call advisers are mainly employed to provide clinical assessment using NHS Pathways and to direct patients to the most appropriate care, as indicated by the CDSS disposition. Call advisers are responsible for directly arranging care for patients, when appropriate. This commonly includes transferring a call to a clinical adviser for further assessment or home advice, directly booking a patient a telephone or face-to-face consultation with a clinician at the UCC, arranging for a district nurse to visit a patient or arranging an emergency ambulance. In this section we outline key aspects of the role, including communication, emotion and quasi-clinical work.

### Communication work

#### Clinical assessment using NHS Pathways

Our previous study examined the everyday work and skills of call advisers in detail.<sup>18,27</sup> This current project confirmed much of our previous analysis but it has extended our understanding of the everyday work of call advisers. It is not our intention to replicate earlier findings in full but instead provide an overview of the key aspects of call-handling work within the NHS 111 service.

NHS Pathways synthesises current clinical research into a series of algorithms that, when followed accurately, should produce consistent outcomes so that there is an objectively 'correct' disposition for every condition. By extension, the role of the call adviser is to identify the most important symptom for triage and allow the CDSS to drive the assessment, so that call advisers are, in essence, trained users of technology. However, our previous work contended that call advisers do more than simply use the CDSS. Some call advisers 'follow the system' as closely as they can, as they are trained to do. This is particularly observable with less experienced call advisers. However, NHS Pathways is designed to include a degree of flexibility so that call advisers can ask questions in different ways using 'supporting information' provided in the system, whilst still 'capturing the clinical essence' of the question ('probing'). Probing is required to elicit the most accurate or precise information possible, which can change the disposition, for example asking the patient to describe the nature of their chest pain (e.g. 'crushing', 'shooting', 'aching', 'ripping'):

*You can probe more, and you can word it in a way that you think [the caller is] going to understand . . . put it in your own words, but you've got to make sure that you still stick to the same track of what . . . you're trying to ask, the information that you're trying to get from them. Which . . . is quite difficult, because you've . . . only got a few seconds to think, how you're going to ask this person.*

*CMgr2, focus group, site 4*

*[NHS Pathways] also teaches you, because every time you use it, you learn. When you read the information, the next time you come to do that call again you know what to say. You [learn] to say things in different ways . . . like . . . the dreaded, 'have you got a ripping or tearing pain question?' Everyone says, 'yes', to that, so you learn how to say it in different ways . . . Pathways helps you do that with the supporting information.*

*CallA3, focus group, site 5*

Observation at all sites confirmed our earlier findings that the call adviser acted as a 'translator' between NHS Pathways and the caller; this is a critical component of call assessment. Call advisers explain clinical terms in a way that is comprehensible to the caller, provide explanations and, conversely, interpret the caller's description of symptoms. The way in which call advisers employ their communication skills is particularly evident when callers experience difficulty in answering questions, especially questions that require the caller to 'quantify' symptoms (e.g. the amount of blood loss, severity of pain, how unwell they feel):

*If a parent phoned with a child that's a little bit lifeless, and we say . . . 'is the child floppy and lifeless'? If we just went on what the parent said, 'yes, they are . . .' we'd have to get an ambulance for that child . . . But if you . . . chat a bit more . . . 'well, are they floppy and lifeless, or are they just a little bit lethargic, and a bit sleepy?' Now, if mum's saying they are floppy and lifeless . . . we need that ambulance, but sometimes, an interpretation of floppy and lifeless, it might just be a listless, lethargic baby who doesn't need an ambulance. How do you decide which one is life-threatening and not? You chat to the mum as much as you can . . . you know, is it like a ragdoll?*

*CallA4, focus group, site 4*

Call advisers constantly test out their understanding from the caller, by reflecting their description back to him or her. This ensures that they have a clear picture of the symptoms described by the caller. This also acts to defer responsibility back to the patient, who is then primarily responsible for describing what he or she thinks the main or most serious symptom is.

New call advisers often have high emergency ambulance disposition rates, partly because they have yet to gain enough experience to develop the probing and translation skills that are necessary to make NHS Pathways work. More experienced call advisers internalise the knowledge/clinical expertise within the system, observable in the way that they sometimes work ahead of the system. It is a fine line between 'probing using the supporting information' and 'using your own words'; call advisers are aware of this:

*CallA1 speaks very fast when triaging calls. After the call he says that he 'probably goes a little bit fast because I know the pathway so well . . . it's probably not a good habit to be in . . . sometimes I might miss something but I'm so used to the pathway now'.*

*Observation, call centre, site 2*

*CallA10 says, 'I rarely follow a pathway to the end. You can't. You'd never get to a disposition. You have to go off of the exact questions and ask them slightly differently. Depending on how you ask the questions . . . you can ask them in such a way as to change the response and convince someone'.*

*Observation, call centre, site 3*

Flexible use of the CDSS is strongly linked to widespread beliefs (amongst call advisers and clinicians) across sites that NHS Pathways is 'risk averse' and that it is necessary to be cautious to ensure that the technology is safe for use by non-clinical staff. However, this is problematic for health services that have to address rising demand by rationing front-line services. Overall, call advisers trust that the system is 'safe' but are less confident in its ability to discriminate (potentially) life-threatening cases from less urgent cases. Trust in NHS Pathways from the NHS 111 workforce is discussed in more detail in *Chapter 5* (see *Trust in the technologies for NHS 111*).

CallA4 stated that 'Pathways works on the basis that I don't have any medical knowledge . . . on the basis of ruling out. It's going to send an eight minute response on the basis of, we can't rule out' (focus group, site 1). To compensate for this perceived lack of specificity, call advisers and clinicians mediate the assessment process to ensure that it does not result in 'unnecessary' dispositions that require a higher level of care (e.g. an emergency ambulance). When calling NHS 111, many callers do not expect – or want – an ambulance. This can be used to avoid sending an ambulance, depending on the call adviser's 'instinct' or 'judgement'. When the call adviser 'feels' that an ambulance is probably necessary, he or she is more forceful in suggesting to the caller that an ambulance is advisable:

*There's a slight drop on the right hand side of the face? Has that started within the last 3 hours . . . you don't know . . .? [. . .] From the information you have given me, we would advise an ambulance because your friend said your face and body are dropping on one side [. . .] That's up to the paramedics to decide . . . [an ambulance is] the quickest way to get you assessed.*

*CallA20, observation, call centre, site 2*

In other situations, when the caller adviser's instinct is that an ambulance is probably not needed, the call adviser offers the caller a choice of what he or she would like to do. Call advisers cannot 'downgrade' the urgency of a call, but they can transfer the call to the clinical adviser for further discussion about the disposition. Less commonly, call advisers may also restart triage when the call is heading towards a 999 disposition and their instinct is that an ambulance is not required or, conversely, to ensure that a 999 disposition is reached:

*CallA12 says that 'with some ambulance despatch calls, you get a sense an ambulance is not needed', reiterating that sometimes he 'goes back' to re-ask a question and 'sometimes you get a different response then, or sometimes a caller will recognise themselves they don't need an ambulance and will say'.*

*Observation, call centre, site 2*

Additionally, call advisers also call on the clinical expertise of the centre clinical advisers to mediate the system during assessment (explored in *What is the work of clinical advisers?*).

## Making a disposition

Call advisers engage in negotiation so that the disposition is acceptable to the caller. This involves managing the caller's expectations (e.g. around the need to answer the questions, around home visits and around the time that they may need to wait for an ambulance to arrive). For example, CallA1 reiterates, 'I am going to ask a series of questions, some of these won't seem relevant but they will enable us to get [name of patient] the care she needs' (observation, call centre, site 2).

Call advisers also offer the caller a degree of choice. There were differences between sites in how call advisers approached negotiation. At sites 1 and 5, call advisers were typically less likely to offer a range of options to patients and it appeared that training played an important role in this. Call advisers were trained to trust the system – and the system disposition – so that they tended to present that disposition to the patient as the appropriate (and only) option whenever possible. Experienced call advisers learned to avoid hesitancy and limited the choice offered to patients. It appeared that these staff had been trained to 'take the call as far as they can', to trust the disposition, and as a result appeared more 'empowered' in negotiating more firmly with patients:

*I've heard some people say, 'right, from the information you've given us you need to contact your GP within the next 24 hours. So do you want to wait and contact your own GP surgery or should we book you an appointment?' What's that about? Don't ask them 'should we book an appointment?' [. . .] In training, it's not part of the call flow to say, 'can you get there okay?' It's part of the call flow to say, 'this is your disposition, or here's your appointment, this is it finished'.*

*Trainer1, focus group, site 1*



*Interviewer: Do you have any issues here with . . . getting calls from people that probably ought to try to see their own doctor, or is that not really an issue?*

*CallS1: They get referred back to their own doctor after the assessment.*

*Focus group, site 5*

The other sites were more likely to check that callers were happy with the outcome, sometimes offering a range of options or over-riding the disposition. Sites 2 and 4 had both previously handled GP out-of-hours services prior to NHS 111 and this history appeared to play a part. Previously, call advisers took basic demographic information and passed the call to a clinician so that patients almost always saw or spoke to a doctor. Some call advisers believed that a quality, patient-centred service is one in which the patient has contact with a GP (or NP) – and this was particularly noticeable at site 4.

*We recommend you contact your GP in the next 12 hours. You have a couple of options; go to your GP, or the drop-in centre [walk-in centre]. Or you could go to the urgent care centre at the hospital. Those are your options at the moment. What do you think you will be doing?*

*CallA13, observation, call centre, site 2*

*CallA3 talks in some depth about NHS 111, explaining that before 111 they used a 'call handler protocol' that included only a couple of questions and was very different to Pathways. He explains that he feels '111 is effective in some ways, but in others it is detrimental . . . you have to understand the clinical essence of calls. There are so many different call takers and some won't understand the clinical essence'.*

*Observation, call centre, site 4*

Although call centre staff at these sites highlight that there are many calls coming into NHS 111 that may be more appropriate for management in routine general practice, once call advisers have triaged a call they are often reluctant to follow the 'see own GP within 3 days' disposition. This disposition is frequently over-riden or upgraded so that patients are either booked in at an UCC or referred to a clinical adviser. This practice partly stems from a reluctance to 'take responsibility' for the 3-day disposition and partly occurs because call advisers feel that this disposition offers a poorer service than was offered previously (in the out-of-hours organisation).

*CallA2: I don't like that one [disposition], see your doctor in three days.*

*CallA5: Ah, well, you see, I don't do that. I then put it through for nurse.*

*CallA4: I do, as well [laughter, overtalking].*

*CMgr1: Right, I see! You know if it comes out as that, you can tell them that. It's only if they refuse it, and say they're not happy, with the advice that you've been given? And if they're happy, that's fine. If they're not happy, then you put in for a nurse . . . How many more people are doing things like that?*

*CallA2: If it's Saturday morning, and they're waiting three days, I think, they've rung this morning, because they don't want to wait till Monday [. . .]*

*CMgr1: But do you know what it is, everybody's sat there thinking, well, actually, I'm not risking my calls, well, actually you go round and, everybody's doing the same.*

*CallA1: Yes, but if somebody's got a baby, and . . . or a child, and they've got symptoms, why would they want to go into the doctors next week? [overtalking] [. . .]*



*CMgr1: I think it's the mindset, as well, because we're urgent out-of-hours like, people, like CallA1 said, they've rung you at the weekend because they want something doing that weekend. If not, they'd have waited till Monday. And I think it's our mindset, well, actually, we're not offering a good service, if we don't then offer them a service, at the weekend, because we used to.*

*Focus group, site 4*

### Emotion work

Call advisers are engaged in front-line work that involves considerable emotional labour and there are several factors that contribute to this: (1) the intensity and pressure of the work, (2) the emotional nature of the calls and (3) feelings of personal responsibility for patients' care.

### Intense and pressurised work

Call advisers experienced intense and pressurised periods of work sometimes, with few breaks between calls (particularly when sites were 'understaffed'), and described their work as sometimes stressful, intense, demanding and/or tiring. Meeting call targets added additional pressure. Periods of high demand occurred particularly during Saturday mornings and early evenings after the GP surgeries close (1800–2000). However, we also observed periods when there were considerable gaps between calls (typically on early in the afternoon and overnight).

*CallA11 is concerned about current shift patterns covering busy periods: 'I don't think we should work both Saturday and Sunday [staff at site 3 usually work 12-hour shifts]. It's constant from the moment you sit down until the moment you leave. It's too much. Your brain can't think straight by the end of the day [others sitting nearby agree] . . . call advisers should do split shifts . . . either a Friday/Saturday, or Sunday/Monday; not a Saturday/Sunday'.*

*Observation, call centre, site 3*

*CMgr2: As soon as you put that phone down, it's ringing again. It's got to be answered within 15 seconds. It's just mind boggling.*

*CMgr1: Six hours and you're exhausted; doing constant call after call after call . . . it's hard to switch off from one patient to the next.*

*Focus group, site 4*

Our observation at all five sites showed that call advisers experience pressure to undertake a range of tasks, many of which are carried out in parallel. The call adviser must listen to the caller, talk to him or her and ask questions, read the screens, type in information and navigate the system with a mouse, all within a tight time frame. This adds to the complexity of the work.

*The system's grown so big and . . . there's so much more to remember . . . it's the booking systems, the call flows . . . the calls are becoming harder for everybody, including . . . the call takers who are brand new, who have got a hell of a lot to remember.*

*Trainer1, focus group, site 1*

### Emotional nature of the calls

Call advisers routinely manage patients undergoing potentially life-threatening events and with potentially life-threatening diseases who may be anxious and distressed. While directing to urgent care services or providing health advice, callers often require reassurance and emotional support and sometimes call advisers bear the brunt of callers' anger, frustration, hostility or abusive language. Some caller frustration was triggered by having to answer the questions required for the assessment process and this occasionally led to anger towards call advisers and accusations about call advisers' 'status' and/or experience:

*People ring up wanting advice and they are not happy. For example a patient phoned who didn't want to answer questions. He always used to call [out-of-hours service] before and get a doctor's appointment straight away. We had to do an assessment and he didn't want to wait for an out-of-hours appointment. He agreed to see the doctor in the end.*

*ClinA3, observation, call centre, site 5*

Call advisers also sometimes needed to ask sensitive, embarrassing or difficult questions. Some demonstrated reluctance, apologising for asking a particular question, and occasionally omitted to ask questions that they felt were inappropriate for particular patients (e.g. not asking an elderly man about drug or solvent abuse). Call advisers at all sites routinely warned callers at the beginning of each call that they would ask a series of questions, 'some of which might not seem relevant'. This served to defuse callers' frustration from the beginning of the call.

There were clearly individual differences between call advisers' emotional responses to callers, but there also appeared to be differences in approaches and attitudes at organisational level. The role of organisational context is explored further in *Chapter 6*. For example, typically call advisers at site 1, and to a lesser extent at site 3, spoke less often about the emotional component of their role. This may be the effect of 'ambulance' culture – in which workers typically appeared to express a more matter-of-fact approach to work. Site 2 shared some of the attitudes of sites 1 and 3 but many call advisers expressed a high level of concern about what some referred to as 'our patients'. Sites 2 and site 4 in particular emphasised a patient-centred service ethos (discussed further in *Chapter 6*). Typically, calls about young children and elderly callers elicited greater empathy from call advisers. Call advisers and clinical supervisors alike were concerned about callers and had an interest in patients' well-being beyond their contact with the NHS 111:

*The new staff . . . we can only teach them so much. We teach them pathways, and we put them in the call centre, and they'll do the calls, and we'll show them everything that should be done . . . within four weeks they can do a lot more than we could ever teach them, because the existing staff also teach them as they're going along . . . the staff that we've got . . . really do care about patients [. . .] We're very lucky like that.*

*CMgr1, focus group, site 4*

*CallA20 says that she had to tell the caller to call back their own GP. She expresses concern for the patient and wonders if their own GP would offer them an appointment today: 'I hope he doesn't wait until tomorrow. I wish there was a way for me to check'.*

*Observation, call centre, site 2*

Several call centres reinforced to call centre staff the message about the patient-centred nature of the service, using printed information or computer technology:

*Posters about 111 are displayed on the walls in the call centre, encouraging call takers to think about how they respond to calls: 'go that extra mile to make sure our patients are safe and cared for. That lady might be your mum'.*

*Observation, call centre, site 2*

Empathy is associated with call advisers' categorisation of the 'appropriateness' of the caller. At all call centres moral judgements about patients' behaviour are made and call advisers construct a shared understanding about the 'inappropriate use of services' and that some callers' concerns are 'not genuine':

*There's loads of things that we can fix . . . like stopping people . . . with a sniffle, for example. For me personally the thought of ringing an out-of-hours service would literally be because I am that ill that I can't physically . . . I remember one time I came into work and I could hardly speak, I was that ill.*

*Trainer1, focus group, site 1*

It is clear that calls perceived as 'not genuine' add frustration to the work. This was apparent across all sites to some extent but was more extreme in some than others. Staff perceived that callers sometimes exaggerated their symptoms to receive medical attention more quickly, to 'play the system', resulting in inappropriate dispositions and higher levels of care than were necessary:

*CallA1 explains sometimes callers will make it sound so bad that 'by the end of the Pathway we have to say "based on what you've told me I'm going to have to send a blue light ambulance" and then the caller is like "no, no, I'm not that bad" '. Sometimes 'they try and play the system'.*

*Observation, call centre, site 1*

### **Personal responsibility**

Even with a technology widely acknowledged as 'risk averse', the flexibility in the system can create uncertainty for call advisers with regard to their assessment of calls. Call advisers are under pressure to avoid any risk to patients, but at the same time are on the 'front line' in rationing and allocating health resources. At all sites call advisers were highly aware of the risks inherent in their role – the potential for causing unintended harm by 'getting the disposition wrong'. This anxiety was particularly observable at sites less experienced in providing NHS 111 services (sites 4 and 5). Some call advisers felt a huge sense of personal responsibility for making the right disposition, and at site 4 in particular high levels of anxiety about 'getting it wrong' were evident. Part of the call advisers' anxiety could be attributed to being a newer NHS 111 provider, but they were also influenced by the fact that NHS 111 did not offer the 'level of service they had offered before' (i.e. as an out-of-hours organisation) and they were uneasy about ending a call without the input of a clinician:

*CMgr1: It's a massive, massive responsibility, because one mistake, it can cost somebody . . . their life.*

*CallA4: Which is a lot for somebody who is only call handling and . . . not medically trained.*

*CMgr2: . . . it's always at the back of your mind how serious and how important it is that.*

*Focus group, site 4*

*[The trainer] says [staff] 'didn't realise what they were taking on'. Under the previous system all calls were passed to a GP/nurse for triage/consultation . . . now the job requires them to probe for information . . . call advisers feel much more responsibility for the patient, decision and disposition (particularly when care can end with the advice they give, e.g. go to pharmacy). Call advisers have commented on their pay in relation to a clinician who is paid to take the responsibility, but they recognise their pay is better than other call-handling work.*

*Observation, call centre, site 4*

### **What is the work of clinical advisers?**

Clinical advisers support and collaborate closely with call advisers. Indeed, NHS 111 is promoted as a service that is 'staffed by a team of fully trained advisers supported by experienced nurses'.<sup>12</sup> Largely, the everyday work of clinical advisers is dependent on call advisers, who define and prioritise their work. NHS 111 is designed so that calls are transferred to a clinical adviser at the time of the call whenever possible (known as 'warm transfers'), so that patients experience 'seamless care'. If no adviser is available the caller is offered a call back, but the call back should be made within 10 minutes. Clinical advisers at call centres are involved in three main activities: (1) supporting call advisers by providing them with clinical advice and taking calls that require further assessment, (2) managing or moderating NHS Pathways dispositions and (3) providing home management advice for patients. Clinical advisers also performed audit and/or training roles (see *Chapter 4, Clinical advisers*). It is important to note that we did not directly observe clinical advisers in site 2 as they were employed by a different organisation and were located elsewhere.

### **Supporting call advisers and providing further clinical assessment**

Call advisers frequently seek assistance from clinical advisers, requesting information or advice about calls that do not 'fit' easily into NHS Pathways and about which pathway to take or explanations for the meaning of medical terms. There were, however, noticeable differences between sites in the practice of providing 'in-call' advice. At site 3, clinical advisers routinely supported call handling in this way, which was not unique to this site but did occur more frequently here. At this site clinical advisers also often listened in to calls 'live' and would intervene to offer advice. The *NHS 111 Minimum Data Set (MDS)*<sup>28</sup> suggests that site 3 transfers fewer calls to the clinical adviser than other sites, but our findings suggest that this is likely to be because clinical advice is utilised more informally during the call:

*The clinical adviser comes over to CallA6 (she has been listening in to the call) and advises that the occupational therapist should visit the patient at home to undertake further triage. Call advisers perhaps draw on each other's knowledge less often here (than other sites) but ask clinicians for advice.*

*Observation, call centre, site 3*

At other sites (particularly sites 1 and 2) call advisers tended to seek support from non-clinical supervisors or other call advisers. At site 4, rather than seeking 'in-call' advice, call advisers more readily 'early exited' the call (i.e. when triage is not completed within the call) and transferred it (warm transfer) to a clinical adviser. A number of factors might account for these observed differences. Call advisers at sites 1 and 5 were trained to 'take the call as far as they could' before seeking additional support from the clinical adviser. At site 2 the fact that call advisers tended to seek support from non-clinical supervisors or other call advisers was almost certainly because there were no clinical advisers at the call centre, which required call advisers to make a telephone call to access clinical adviser support. At site 3 the spatial configuration of the call centre (it was small with fewer staff and was therefore easy to attract the attention of the clinical supervisor), and the fact that call advisers were actively encouraged to ask a clinical adviser for help as and when necessary, appeared to encourage greater involvement of clinical advisers during call adviser assessment.

When a call is warm transferred the role of the clinical adviser is to verify the call adviser assessment, checking that the call adviser used the correct pathway and elicited the correct answers ('validation'), rather than commence triage from the beginning. However, many clinical advisers expressed concern about validation, instead of their normal clinical role of beginning assessment 'at the beginning'. Some clinical advisers expressed a lack of trust in non-clinical call advisers and NHS Pathways, as well as concerns that their professional registration could be at risk:

*NP1: As a nurse, I still prefer to take [assessment] from the beginning . . . when you're just validating, it's like starting a book halfway through [. . .] Some people do tend to over validate . . . or think, well, they've already been asked that, and under validate; it's finding that fine balance [. . .] I do like starting from the beginning.*

*Interviewer: So is the ideal then . . . it should be about validation, and not re-triage?*

*SMgr1: Yes, they should not re-triage. They should validate and then continue the clinical assessment.*

*NP1: [. . .] When we first went to look at [NHS Pathways] . . . I think quite a few of us thought, 'I like this, but I like this for nurses to use. Do we like this for call handlers to use?'*

*NP2: When it comes down to it though . . . when you say nurses are over validating, a nurse has got a registration to protect . . .*

*SMgr1: And they are accountable for their own actions, and to mark somebody down for being over cautious . . .*

NP1: . . . I can lose two points [in auditing]. I'd rather over validate than . . . than miss points.

NP2: Lose two points, rather than lose a life [. . .] The nurse has to be confident, because she's then taking responsibility and accountability. We do work very well as a team . . . we know we've got some great call handlers but we don't know everybody . . . some of them are new, you're . . . just trusting someone else, has she asked that . . . question correctly . . .? So the nurse is actually accountable for her actions.

Focus group, site 4

This lack of trust by clinical staff was reflected in the survey findings (Table 6). At all sites (except site 5) clinicians were significantly more likely than non-clinical staff to disagree with the statement 'Non-clinical call handlers are safe to assess calls supported by NHS Pathways'. It is important to note that the UCC staff in site 5 did not take part in the survey, which may affect the results for this site as their views are not represented.

Staff across all sites felt that clinical advisers are necessary to support call advisers in delivering the NHS 111 service. The survey revealed few differences between sites, although, perhaps unsurprisingly, at site 2, where clinical advisers are part of a separate provider, non-clinical staff were less likely to agree that clinical advisers are necessary (with a mean score of 3.83 compared with mean scores of 4.72 at site 1, 4.43 at site 3, 4.62 at site 4 and 4.57 at site 5). Clinical and non-clinical staff were similar in their views about whether clinical advisers are needed, except in site 1, where clinicians were less likely to agree that clinical advisers were a necessary part of delivering NHS 111 (Table 7).

### Sanctioning and moderating dispositions

Clinical advisers also deal with calls that require further clinical assessment, including those in which the caller has refused or is unhappy with the disposition, for example when a lack of mobility or transport prevents a patient from travelling to a health-care facility. Unlike call advisers, clinicians can 'downgrade' dispositions. They also take calls that are 'early exited' by call advisers, such as calls that appear to have a complex history or that involve complex multiple symptoms, calls in which the patient answers 'not sure' to three or more questions during call adviser triage or calls in which the caller is not the patient/not with the patient.

CallA1 explains to ClinA1 across the room that the disposition is '[for the patient to] see an optician . . . mum is questioning whether it's hay fever . . . I've gone down the eye pathway, but it's saying "optician 3 days" . . . this is the second time I've had an optician disposition and it didn't feel appropriate'. ClinA1 agrees to take the call. After the call CallA1 explains, 'the disposition didn't quite feel right, so I sent it to the paramedic' [clinical adviser].

Observation, call centre, site 3

Clinical advisers serve an important role in sanctioning early exits and 'over-rides' (in which the call adviser chooses not to follow a pathway/disposition). Sites 1 and 2 appeared to 'early exit' less often. The NHS 111 MDS confirmed that lower proportions of calls at these sites were passed to clinical advisers. It is most likely that we are seeing the effects of a longer-established, more experienced workforce. Our observations suggested that site 4 call advisers routinely 'early exited' calls and transferred them to a clinical adviser. In the main, clinical advisers were very supportive, but occasionally they were reluctant to take a call, suggesting that call advisers were sometimes 'too keen' to transfer a call, adding to their clinical workload, with the call adviser effectively deferring responsibility for the disposition. It is likely that the lack of confidence on the part of the call advisers is primarily because this is a relatively new site. However, it could also be the case that this site had less of a culture of autonomy in call handling than other sites, where call advisers were encouraged to complete as many calls as possible without assistance from clinical advisers:

If they [the caller] say no I will then pass it to the clinical supervisor to decide. They can take responsibility with their clinical skills.

CallA18, observation, call centre, site 1

TABLE 6 Staff agreement with the statement 'Non-clinical call handlers are safe to assess calls supported by NHS Pathways'

Site	Staff group	n	Strongly disagree, n (%)	Disagree, n (%)	Neither agree nor disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Mean (SD)	F-value; p-value
1	Non-clinical	28	2 (7.1)	6 (21.4)	3 (10.7)	11 (39.3)	6 (21.4)	3.41 (1.32)	F = 22.60; p < 0.001
	Clinical	21	10 (47.6)	7 (33.3)	2 (9.5)	2 (9.5)	0 (0.0)	1.81 (0.98)	
2	Non-clinical	22	0 (0.0)	1 (4.5)	6 (27.3)	7 (31.8)	8 (36.4)	4.00 (0.93)	F = 5.71; p = 0.023
	Clinical	11	1 (9.1)	3 (27.3)	2 (18.2)	4 (36.4)	1 (9.1)	3.09 (1.22)	
3	Non-clinical	22	0 (0.0)	2 (9.1)	3 (13.6)	12 (54.5)	5 (22.7)	3.91 (0.87)	F = 15.87; p < 0.001
	Clinical	29	4 (13.8)	8 (27.6)	10 (34.5)	5 (17.2)	2 (6.9)	2.76 (1.12)	
4	Non-clinical	47	1 (2.1)	4 (8.5)	12 (25.5)	20 (42.6)	10 (21.3)	3.72 (0.97)	F = 43.53; p < 0.001
	Clinical	52	14 (26.9)	14 (26.9)	15 (28.8)	9 (17.3)	0 (0.0)	2.37 (1.07)	
5	Non-clinical	28	1 (3.6)	0 (0.0)	3 (10.7)	7 (25.0)	17 (60.7)	4.39 (0.96)	F = 0.50; p = 0.49
	Clinical	11	0 (0.0)	0 (0.0)	0 (0.0)	9 (81.8)	2 (18.2)	4.18 (0.40)	
Total	Non-clinical	147	4 (2.7)	13 (8.8)	27 (18.4)	57 (38.8)	46 (31.3)	3.87 (1.04)	F = 88.89; p < 0.001
	Clinical	124	29 (23.4)	32 (25.8)	29 (23.4)	29 (23.4)	5 (4.0)	2.59 (1.20)	

SD, standard deviation.

**TABLE 7** Staff agreement with the statement 'Clinical advisers to support call advisers in call-handling centres are necessary for the effective delivery of NHS 111'

Site	Staff group	n	Strongly disagree, n (%)	Disagree, n (%)	Neither agree nor disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Mean (SD)	F-value; p-value
1	Non-clinical	28	0 (0.0)	0 (0.0)	0 (0.0)	6 (21.4)	22 (78.6)	4.72 (0.46)	F = 7.33; p = 0.009
	Clinical	21	2 (9.5)	0 (0.0)	1 (4.8)	9 (42.9)	9 (42.9)	4.18 (1.18)	
2	Non-clinical	23	2 (8.7)	1 (4.3)	3 (13.0)	10 (43.5)	7 (30.4)	3.83 (1.19)	F = 1.04; p = 0.31
	Clinical	11	0 (0.0)	2 (18.2)	0 (0.0)	2 (18.2)	7 (63.6)	4.27 (1.19)	
3	Non-clinical	23	0 (0.0)	0 (0.0)	0 (0.0)	13 (56.5)	10 (43.5)	4.43 (0.51)	F = 1.14; p = 0.29
	Clinical	29	0 (0.0)	0 (0.0)	5 (17.2)	12 (41.4)	12 (41.4)	4.24 (0.74)	
4	Non-clinical	47	1 (2.1)	1 (2.1)	0 (0.0)	11 (23.4)	34 (72.3)	4.62 (0.80)	F = 0.02; p = 0.89
	Clinical	52	0 (0.0)	0 (0.0)	4 (7.7)	13 (25.0)	35 (67.3)	4.60 (0.63)	
5	Non-clinical	28	0 (0.0)	0 (0.0)	1 (3.6)	10 (35.7)	17 (60.7)	4.57 (0.57)	F = 0.017; p = 0.90
	Clinical	11	0 (0.0)	0 (0.0)	0 (0.0)	5 (45.5)	6 (54.5)	4.55 (0.52)	
Total	Non-clinical	149	3 (2.0)	2 (1.3)	4 (2.7)	50 (33.6)	90 (60.4)	4.49 (0.79)	F = 0.92; p = 0.34
	Clinical	124	2 (1.6)	2 (1.6)	10 (8.1)	41 (33.1)	69 (55.6)	4.40 (0.83)	

SD, standard deviation.



*[The clinical adviser] was clear that she shouldn't get all the calls she does – far too many calls are being early exited, usually using the 'complex medical history' explanation.*

*Observation, call centre, site 4*

Some types of disposition were more likely to be passed to clinical advisers, typically 999 dispositions and routine GP dispositions. Across all sites there are strong normative messages (from within the organisation and externally) to avoid sending ambulances to patients who have dialled NHS 111 'unnecessarily' and to ensure that the number of calls resulting in a 999 disposition is within 'acceptable limits'. This is particularly observable at sites where call handling is provided by ambulance services. In all settings, both formal and informal processes shape the way that clinical advisers moderate or 'sanction' dispositions. At site 3 a local policy exists so that all NHS 111 calls resulting in a 999 disposition are routinely checked by a clinician (who quickly assesses it to ensure that it does 'really need' an ambulance), giving responsibility to the clinician to 'control' the dispatch of ambulances. Staff support this intervention believing that clinical experience is necessary to take account of a risk-averse system (as well as patients who 'over-report' symptoms). At other sites there was no 'policy' as such, but 999 dispositions were frequently checked by clinical staff in the same way (sites 1, 4 and 5).

*You need clinicians as [NHS Pathways is] so risk averse; otherwise you'd end up with an ambulance for everything.*

*ClinA6, observation, call centre, site 3*

*CallA2 says, 'there are protocols to not send the ambulance out where we [organisation] feel it's not needed'. Staff are actively managing the system to ensure that their 999 call rates are not 'too high'. We see this elsewhere . . . Staff see it as part of 'making NHS Pathways work'.*

*Observation, call centre, site 4*

### **Home management: clinical experience and the use of NHS Pathways**

Clinical advisers also manage calls that require patient self-care. These calls are transferred to the clinical adviser who can offer advice, sometimes using CDSS module 2, but also drawing on clinical expertise and training. At all sites there is an expectation to manage callers at home whenever it is appropriate to do so, and avoid referring calls 'upwards unnecessarily' (e.g. to GPs/NPs at UCCs). Some staff perceived that there were individual differences between clinical advisers in how they managed self-care advice for callers – and our observations reflected this. Differences between individual clinical advisers related to their levels of confidence and the degree of risk they were prepared to take: 'It depends on the nurse, so some nurses might be more confident to say, you can manage those symptoms at home. Depends how . . . how demanding the patient is, on what the nurse has done' (CallA4, focus group, site 4).

Potentially, NHS Pathways ensures a standard approach to managing calls, to ensure consistency and safety, to lessen risk. Clinical advisers used NHS Pathways in quite different ways – some followed the system very closely, others used it much more flexibly, but differences appeared to be more at individual clinician level rather than at 'organisational' level. Clinical advisers are professional/autonomous clinicians who usually merge their own knowledge, experience and clinical expertise with the CDSS:

*ClinA4 is not particularly following module 2. She asks several questions about symptoms and recent medical history. She clicks through the questions and reaches at a home management disposition.*

*ClinA4 works out what pain relief she could suggest [asking the patient what she has already taken].*

*Observation, call centre, site 4*

*The clinical adviser doesn't find using NHS Pathways restrictive despite his clinical knowledge. 'In the end you've got to be safe', which he describes as safety netting [. . .] He thinks NHS Pathways is cautious [. . .] He says he now understands that when call advisers say that NHS Pathways results in an emergency it is because of the system and feels that as long as you've asked the question then it's right.*

*Observation, call centre, site 5*



## What is the work of call supervisors?

All sites employed staff to perform a 'call and/or shift supervisor' role, referred to by a range of titles (call supervisor, duty supervisor, shift manager); these staff varied in the exact nature of their role and responsibilities. Call supervisors play a key role in the operational management of call-handling and urgent care settings, routinely monitoring workload and workforce and ensuring that NHS 111 or local service standards are met. The role essentially is the operational hub for maintaining the smooth running and integration of the service, with the everyday work being to ensure the management of resources and the adequacy of cover for the whole region. This entails overseeing activities, managing levels of staffing and dealing with emerging problems. In some sites call supervisors also monitor call advisers and provide advice on using NHS Pathways (sites 1 and 2).

### Monitoring and managing workload and staffing

Call supervisors have a 'real-time' overview of demand across urgent care services and are responsible for monitoring and managing workflow at the call centres and UCCs, including:

- monitoring the number of calls received by the call centre and if they are answered and/or transferred within standard time frames
- checking that calls are passed correctly to relevant service or health-care professionals (that calls are in the right 'queue')
- checking that, on completion, calls are closed correctly and removed from the queue
- monitoring activity at call centres and UCCs, such as the warm transfers and the call-back queue for clinical advisers and GPs, as well as managing demand at UCCs (e.g. GP/ECP call-back queues, face-to-face appointments and, in some sites, home visits).

Supervisors also make amendments and changes to the computer system as well as communicating with other services by telephone or e-mail to update and pass on information about a particular patient, for example if a call disposition changes (perhaps because the patient has undertaken a different course of action or has refused the disposition). The supervisors also deal with queries, complaints and any calls that are outside the usual pattern of work. In some sites the supervisor has a role in arranging transport (e.g. dispatching cars for home visits in site 4).

*CallA1 checks on an earlier prison call: 'It's gone on the system' as a routine case . . . but 'should be an urgent' and no call back has been made yet. She approaches the supervisor to explain . . . CallA1 returns: 'The supervisor is going to get the prison call back done as there are five cases in the queue now and it has gone to the bottom of the list'.*

*Observation, call centre, site 5*

*CallA12 finishes the call and informs CallS3: '[the patient has] got an ambulance now. His breathing got worse since they spoke to us'. CallS3 says that, 'you'll still have to retrieve [the call] and cancel it'. CallS3 telephones the UCC to cancel the home visit.*

*Observation, call centre, site 2*

Typically, call supervisors also manage staffing levels at the call centre and, in some locations, at the UCCs (sites 2 and 4). Such work includes ensuring that shifts are covered, organising breaks, sometimes organising rotas and arranging cover if staff are sick. This can also include ensuring that there is sufficient clinical cover at UCCs. Call supervisors at some sites also have a line management role. Overall, the work requirements of these workers are complex and demanding:

*The call supervisor is talking to a UCC doctor: 'Yes it's a bit busy up there [UCC]; we're just trying to clear a backlog . . . What time can you get there for? . . . It's just that there are a lot of walk-ins . . . It's [unclear] rate, so double time'.*

*Observation, call centre, site 2*

*The call supervisor speaks to CallA16 about his timekeeping: 'you know the rules, you still need to be logged in and ready to go'.*

*Observation, call centre, site 1*

*The duty supervisor shows me the notebooks that she keeps, covering all the important events on each shift so that she can remember later if she needs to go back to something. She says it's very hard to switch off after the shift is over. She keeps remembering things when she gets home and has to call up the duty supervisor on shift to make sure they've been dealt with.*

*Observation, call centre, site 4*

### **Sanctioning and moderating dispositions**

In some sites (sites 1, 2 and 5) the call supervisor also provides advice and support for using NHS Pathways. At site 2 the 'liaison' performs call-handling duties but also has a role in supporting call advisers with NHS Pathways. Similar to clinical advisers, call supervisors in some sites also played a role in making decisions about the course of action during an assessment, and sanction dispositions, such as authorising an upgrade:

*The patient reports pain in her chest and back. CallA9 asks if she has ever been diagnosed with a heart attack. Patient: 'I don't think it's anything like that', reporting pain, but not severe pain [. . .] CallA9 tries to establish if the chest pain is due to breathing. He is unsure whether to follow the 'breathlessness' or 'chest pain' pathway. He puts the patient on hold and approaches CallS3 explaining the situation – that the pathway is not answering the question, because the chest pain is from the breathing. CallS3 advises CallA9 to follow the chest pain pathway; the disposition is 'contact doctor in the next 6 hours'.*

*Observation, call centre, site 1*

*Sometimes you get a . . . hunch it's worse than [the patient] says; you can then get the call supervisor to upgrade it.*

*CallA1, observation, call centre, site 2*

In summary, the work of call supervisors shares many of the characteristics of call-handling work. It similarly involves considerable communication and emotion work and is quasi-clinical in nature. The work is also busy and demanding, requiring call supervisors to manage multiple simultaneous events and activities. It also carries considerable responsibility in ensuring that demand for urgent care services is managed optimally, that problems are rectified and that calls 'don't get missed'. There is additional responsibility for moderating dispositions.

## **What is the work of urgent care centre clinicians?**

Clinical assessments and dispositions made by NHS 111 call advisers using NHS Pathways shape the work of the clinicians who provide telephone or face-to-face consultations (at the UCC or during home visits). In sites where premises are shared with walk-in centres they also see 'walk-in' patients and have to balance the demands of walk-in patients with the demands of those who have been booked an appointment through NHS 111. UCC clinicians also take calls from other health-care professionals, providing clinical advice.

### **Managing risk and upward referral of patients**

The main aspect of the UCC clinician's role in relation to NHS 111 is to provide further assessment and a consultation, either on the telephone or face to face (at an UCC or at home). When patients are referred to the UCC by the call-handling service, an appointment time is booked and the UCC receives a summary of the NHS Pathways clinical assessment so that the clinician has some details about the patient beforehand. However, the clinicians use little of this earlier assessment information because they regard it

as being limited and in a format that is difficult to access or they do not trust it. They frequently talk about the need to 'start [triage] from scratch' (we discuss this further in *Chapter 5*):

*Very few doctors will read [the call summary] thoroughly in practice. It can be very confusing. You may have a quick look, but will probably start from scratch again [. . .] it's not difficult to navigate through the information, but it's irrelevant.*

*GP1, observation, UCC, site 5*

*ECP2 describes the call summary as 'no use nor ornament . . . all the useful information is down the bottom, so you to keep scrolling down until you find it'. The useful information are the positive statements; what the clinician sees first is usually a lot of negative statements (e.g. breathlessness was not described; heavy blood loss was not described). He describes the [free] text typed in by the call handlers as 'useless'. It provides 'no history' for the ECP to work with, so they do a lot of triage from scratch.*

*Observation, UCC, site 1*

Implicit in many of the clinicians' thoughts about the information provided by the NHS Pathways assessment are concerns about clinical decision-making and who should be making the decisions in the first place. We revisit the tensions between clinicians and non-clinicians in *Chapter 4* (see *Professional boundaries: clinical and quasi-clinical roles*) where we consider professional boundaries between different groups of workers.

Although most appointments handled by clinicians are the result of the NHS 111 call adviser making a disposition requiring the caller to speak to a doctor, in the same way that call advisers sometimes defer responsibility to clinical advisers for the call disposition, calls are also deferred to the GP for decision-making (either by the call adviser or, less frequently, by the clinical adviser). Most commonly, these are calls in which the caller is unable or unwilling to comply with the disposition (e.g. callers who are unable to travel to the UCC; callers who request a home visit). As we saw in *Communication work*, GPs also receive patients when the call advisers have upgraded a call to a 'see' or 'speak' to GP disposition. It was not uncommon for clinicians to be frustrated by such referrals:

*GP1 reads the disposition from a case that has appeared onscreen: 'if pharmacy is not available contact GP in normal working hours . . . and guess what, it's been passed to us for telephone advice!'. GP2: 'you get lots like that don't you?'*

*Observation, UCC, site 3*

*All you'll get is skewed cases . . . more prescriptions and more passing the buck. Patients who refuse to come to the clinic will just get passed to us.*

*GP1, observation, UCC, site 5*

Despite these frustrations, for call-handling organisations, upward referrals to a clinician are used as a way of minimising risk. Unlike the risk-averse technology and the non-clinical operators, clinicians can assess and manage risk in ways that non-clinicians cannot and so can downgrade dispositions safely. Although it is not always possible to diagnose in full because of the absence of sufficient medical information, they have the expertise needed to make clinical recommendations:

*The GP is engaged in conversation with the patient experiencing hallucinations: 'it's beyond my remit to be altering your Parkinson's drugs without all of your entire history in front of us and as an out-of-hours service, we don't have this'. The GP reassures that their symptoms are due to the medications: 'it almost certainly is that, persevere and stay on the dose and we'll get the doctor to call you tomorrow'.*

*Observation, call centre, site 2*

Clinicians also frequently upgraded dispositions for a variety of reasons, including judgements about clinical need, when they felt that it would reassure the patient, if they had capacity at the UCC to offer the patient an appointment or when they were unable to negotiate with the patient over the original disposition:

*At about 6.30 I sit with the GP doing telephone consultations. The call is from a man who has some sort of infection in his finger. The [NHS Pathways] disposition is 'see GP within 3 days', but the GP says, 'I'm more than happy to look at it tonight [at the UCC] if you want me to'. She books an appointment for 9.00 pm.*

*Observation, UCC, site 1*

### **Loss of control over decision-making and workload**

Many clinicians working at UCCs have experienced a loss of control over their workload since the introduction of NHS 111, with call advisers now determining their work. Call advisers determine which patients are seen by the clinicians, how quickly they need to be seen and how many are seen. Before NHS 111, particularly in sites that previously provided out-of-hours care, the decision to offer an out-of-hours telephone or face-to-face consultation would have primarily been made by clinicians:

*Looking at the case list on screen, ECP1 states, 'we have to do the yellow one next as it's a V2' ['urgent' – see within 2 hours].*

*Observation, UCC, site 4*

*I ask the ECP if he finds it difficult that his workload/decision making is effectively controlled by someone else. He says, 'no, it's about the workload being managed effectively. We'll [UCC staff] see whoever comes through the door . . . we'll see whoever we need to see'.*

*Observation, UCC, site 1*

On the one hand clinicians report that they will simply deal with 'whatever comes through the door', but the way in which calls have been assessed and prioritised has led to frustration levied at call centre staff and at NHS Pathways. There is some acknowledgement that triage is a difficult task for a clinician let alone a non-clinician:

*GP2 says that 'there are some conditions you can pigeon hole . . . chest pain which are quite clear cut, and need to err on the side of caution, but there are other symptoms that are much more difficult for a non-clinician to assess'. She acknowledges that telephone triage is difficult; the lack of visual cues mean that 'it's a very difficult media to work in'.*

*Observation, UCC, site 1*

However, UCC clinicians frequently disagree with the 'appropriateness' of the referral, perceiving that the main problem is over-referral, but they also have some concerns about 'under-referral' of cases. Clinicians perceive that some of this is the result of a risk-averse system and call advisers 'passing the buck'. Our observation suggests that loss of control over the assessment and categorisation of work has meant that there is a lack of understanding about how dispositions are arrived at. Some clinicians know little about NHS Pathways and do not always trust it. They are frustrated about some aspects of the way that the system is regulated and are not clear about what the call advisers are allowed and not allowed to do:

*ECP3 describes a case of a very young child with breathing difficulties: 'they need to be seen urgently, not in 3 hours' time. They come in and you think, "my god, we could have done something for you hours ago" '.*

*Observation, UCC, site 1*

*This case is a headache [adult male] . . . it's not urgent . . . I don't know where some of their categorising comes from; whether it's Pathways that decides what's urgent or the call advisers . . . I'm not sure what they see, presumably they are just answering questions on the screen, but sometimes these [points to the disposition] come out completely wrong . . . I'm not blaming them, but Pathways doesn't get it right.*

*GP2, observation, UCC, site 3*

At every site, UCC clinicians reported that their workload has increased in the out-of-hours period following the introduction of the NHS 111 service, often making comparisons between their current workload and that in the previous out-of-hours service. Although an increase in numbers overall is inevitable given the change from an out-of-hours service to a 24/7 service, clinicians believed that they were seeing an increased number of referrals at all times of the day. It is not clear whether the increase is simply a result of more calls to the service and a knock-on effect or whether the call centres are referring more calls (than the previous out-of-hours service). It appears that clinicians are experiencing an increase in face-to-face referrals, a point made across all sites:

*GP1 explains that since 111 started he thinks there has been an increase [workload] for GPs. 'There used to be three to four calls on the previous out-of-hours and now on 111 there's an average of nine . . . on bank holiday Monday . . . they'd gone right down the screen and off the screen'.*

*Observation, UCC, site 3*

*GP1 says 'too many urgents, too many home visits, too risk averse'. GP2 tells me 'there are far too many home visits from 111'.*

*Observation, UCC, site 5*

*NP1: It's had a big impact on the clinical staff because it's increased their workload . . . face-to-face . . .*

*SMgr3: I think by about 44%.*

*NP1: And yet . . . we've not increased the . . . staff. The . . . work's increased, but . . .*

*SMgr1: The clinician advice has gone down, but the face-to-face work has gone up . . . [. . .] So the face-to-face staff have felt an impact because they are busier [. . .]*

*SMgr3: I think 111 is probably a very good initiative but I'm not sure why it's being introduced at a time of financial austerity. Ideally, yes, we would bring more clinicians in to be able to accommodate extra work; more people are being seen, which is probably quite a good thing, out-of-hours, but of course, we haven't got the resources to be able to pay for more doctors and nurses to see them. So . . . it feels a bit of a double whammy, doesn't it.*

*SMgr1: . . . the amount of goodwill by everybody, but the clinicians, if you look at the . . . shift report, people are working an hour, an hour and a half over, and this must be impacting on the finances . . . of [the organisation] because it's right from the senior, from the doctors, down to the call handlers, people are working overtime.*

*Focus group, site 4*

Survey findings reflect some of the concerns and perceptions amongst UCC staff identified in the qualitative work about NHS 111 generating demand (Tables 8 and 9). At sites 1, 3, and 4, UCC staff were less likely than call centre staff to agree that NHS 111 is an effective way of managing demand (Table 8) and that NHS 111 is a good service for patients (Table 9).

**TABLE 8** Staff agreement with the composite measure 'NHS 111 is effective in dealing with the demands on health service providers'<sup>a</sup>

Site <sup>b</sup>	Staff group	<i>n</i>	Mean (SD)	Range (min.–max.)	95% CI	<i>F</i> -value; <i>p</i> -value
1	Call centre	32	3.84 (0.72)	2.40–5.00	3.57 to 4.10	<i>F</i> = 59.90; <i>p</i> < 0.001
	UCC	21	2.01 (1.00)	1.00–4.20	1.55 to 2.47	
2	Call centre	25	3.47 (0.80)	2.00–5.00	3.15 to 3.80	<i>F</i> = 1.15; <i>p</i> = 0.29
	UCC	17	3.17 (1.02)	1.60–4.80	2.65 to 3.70	
3	Call centre	32	3.70 (0.61)	2.60–5.00	3.48 to 3.92	<i>F</i> = 14.05; <i>p</i> < 0.001
	UCC	28	2.95 (0.92)	1.00–5.00	2.59 to 3.31	
4	Call centre	85	3.55 (0.93)	1.00–5.00	3.35 to 3.75	<i>F</i> = 17.84; <i>p</i> > 0.001
	UCC	23	2.59 (1.08)	1.00–5.00	2.13 to 3.06	
Total	Call centre	174	3.73 (0.82)	1.00–5.00	3.62 to 3.85	<i>F</i> = 84.28; <i>p</i> < 0.001
	UCC	89	2.69 (1.07)	1.00–5.00	2.47 to 2.92	

CI, confidence interval; max., maximum; min., minimum; SD, standard deviation.

a 1 = 'strongly disagree'; 5 = 'strongly agree'.

b The survey was not administered at the UCC in site 5.

**TABLE 9** Staff agreement with the composite measure 'NHS 111 is good for patients'<sup>a</sup>

Site <sup>b</sup>	Staff group	<i>n</i>	Mean (SD)	Range (min.–max.)	95% CI	<i>F</i> -value; <i>p</i> -value
1	Call centre	32	4.13 (0.72)	2.25–5.00	3.87 to 4.39	<i>F</i> = 58.98; <i>p</i> < 0.001
	UCC	21	2.42 (0.90)	1.00–5.00	2.00 to 2.82	
2	Call centre	25	3.81 (0.74)	2.50–5.00	3.50 to 4.12	<i>F</i> = 1.66; <i>p</i> = 0.21
	UCC	17	3.48 (0.89)	1.75–5.00	3.03 to 3.94	
3	Call centre	32	3.91 (0.58)	2.50–5.00	3.71 to 4.12	<i>F</i> = 9.65; <i>p</i> < 0.003
	UCC	28	3.39 (0.72)	2.00–5.00	3.11 to 3.67	
4	Call centre	85	3.75 (0.80)	1.75–5.00	3.58 to 3.93	<i>F</i> = 10.08; <i>p</i> = 0.002
	UCC	23	3.13 (0.97)	1.25–5.00	2.71 to 3.55	
Total	Call centre	174	3.96 (0.75)	1.75–5.00	3.86 to 4.06	<i>F</i> = 66.43; <i>p</i> < 0.001
	UCC	89	3.13 (0.94)	1.00–5.00	2.93 to 3.32	

CI, confidence interval; max., maximum; min., minimum; SD, standard deviation.

a 1 = 'strongly disagree'; 5 = 'strongly agree'.

b The survey was not administered at the UCC in site 5.

## Summary

NHS 111 receives a wide range of calls, from life-threatening cases to those requesting health advice, dealing with physical and mental health as well as social issues. Building on our previous study, our observation shows that NHS 111 call-handling work is complex, involving high levels of communication and 'emotion' work. Call advisers engage in a range of everyday work activities that extend beyond being simple users of a CDSS to assess calls. The ways in which the work 'gets done' play out differently at each site, but all call advisers demonstrate a considerable level of skill in negotiation, communication and translation to mediate the assessment process, which enables the CDSS to work most effectively. Clinical advisers provide support and reassurance for call advisers but they are more 'hands on' in some sites than in others. They also play an important role in managing the use of ambulances. Variations between sites in how clinical advisers provide support seem to depend in part on the organisational culture of trust in call advisers and NHS Pathways to triage correctly and on idiosyncratic differences between particular clinical advisers related to their professional competence and attitude towards risk. Call supervisors typically are involved with managing and monitoring workload and staffing across NHS 111. In some sites they also play a role in supporting call advisers with their use of NHS Pathways.

Clinicians at UCCs provide further assessment and consultation, either on the telephone or face to face (at an UCC or at home), and their work is shaped by call advisers, clinical advisers and call supervisors working at the call centre, who determine how many patients are seen, who is seen and how quickly patients are seen by clinicians. Overall, staff at UCCs were less positive about NHS 111 than call centre staff.





## Chapter 4 Results: who is the workforce?

In this chapter we explore the workforce of NHS 111, including call-handling and urgent care staff roles. We start by describing the workforce briefly, considering their skills and experience. Next, we discuss the emergence of a new 'NHS 111' workforce, considering aspects such as role differentiation, division of labour and team relationships. Finally, we consider the training and education needs of the workforce.

### Work roles

#### Call advisers and supervisors

At the two sites where call handling is provided by ambulance service providers (sites 1 and 3), call-handling staff included existing 999 and single point of access/out-of-hours call handlers. At site 1, call advisers had used NHS Pathways for several years prior to the introduction of NHS 111. Many existing call advisers were 'dual trained', taking both 111 and 999 calls, although newly recruited staff were trained only to take NHS 111 calls. At site 3, all call advisers were trained to take both types of call using NHS Pathways a few months before the launch of NHS 111. This allows the flexible use of staff as call advisers can answer NHS 111 or emergency ambulance calls and is one way of managing peaks in demand or unexpected demand. At sites 2 and 4 a number of existing call advisers were joined by new call advisers when NHS 111 was launched. The existing staff at site 2 also had previous experience of using NHS Pathways. Site 4 trained its existing staff to use NHS Pathways and recruited new staff for the NHS 111 service. Site 5 was a new provider with a new workforce of call advisers (*Table 10*).

The length of shifts varied at the different sites. At ambulance-led sites (1 and 3) shifts were typically 12 hours long and, although a full-time workforce was favoured in these sites, NHS 111 brought about more variation with the addition of more part-time staff to cover peak demand. For example, in site 3, a weekend workforce was introduced. At other sites there was greater variation in shift length (but more typically 6–8 hours).

There was variation across sites in the number of call advisers on shifts. The smaller sites (sites 2 and 3) typically had between two and four call advisers in-hours (i.e. 0830–1800) and between four and 10 at busier, peak demand times (evenings and weekends), reducing to one to three call advisers overnight. The larger sites typically had between four and eight call advisers on shift in-hours and six to 12 at peak times. In some cases staggered shifts were introduced to cover peak demand, so one or two call advisers might start the shift and be joined by others as the evening progressed and routine GP surgeries closed and demand increased.

Call advisers typically worked a range of day-time, evening, night-time, weekday and weekend shifts.

Our observations of call advisers' backgrounds confirm the results of our previous study<sup>18,27</sup> that health-care call advisers are a diverse workforce in terms of age, experience and qualifications. Broadly speaking, in sites 1 and 5 the call advisers were typically younger and more transitional and included students, graduates and people with high career aspirations (trainee or intended doctors, paramedics); in site 1 call advisers also included those who had chosen a career in the ambulance service as 999 call handlers. In sites 2, 3 and 4 call advisers were typically older and many viewed their role as a long-term career. This is slightly surprising as many call advisers in sites 2 and 4 were employed on a part-time basis. Others were students and fitted the roles around their studies. A further group reported using the job to gain experience for another job in the health-care sector, including those who had aspirations to be GPs or paramedics.

The importance placed on educational qualifications, attainment and an 'educated workforce' varied dramatically between sites. We observed organisations in which there was a lack of value ascribed to formal qualifications and more value given to how personable or likely a person was to get on with the

**TABLE 10** Summary of call adviser workforce characteristics

Characteristic	Site 1	Site 2	Site 3	Site 4	Site 5
No. of call advisers	70	30	31	113	54
FT or PT	FT and PT	FT and PT	FT and PT	FT and PT	FT and PT
Shift length (hours)	12 FT; shorter shifts for PT staff	6–8	12	6–8	6–8
Previous use of NHS Pathways	Yes	Yes	No	No	No
Existing call adviser workforce prior to NHS 111	Yes	Yes	Yes	Yes	No

FT, full-time; PT, part-time.

existing workforce (site 2). In other sites formal qualifications were highly valued (site 5). Interestingly, the call advisers in the private provider (site 5) were made up of two groups: a mix of geographically local people, (mothers with young children, etc.) and a more qualified and possibly transient workforce, including trainee doctors from overseas and students.

Regardless of short- or long-term intentions, observation suggested a call-handling workforce that consistently showed commitment to the role and work in providing NHS 111 services to the public and predominantly viewed the work as important and in some cases 'life saving'. There were some differences between sites, for example among the more transitional workforce in some sites (sites 1 and 5), loyalty to the service was less evident (although loyalty to the task at hand was evident). There was also a particular pride and sense of identity that seemed to come from working for the ambulance service. Loyalty was particularly evident in sites 2 and 4, where staff identified themselves as being part of a 'big family', with management fostering and holding on to this ethos. Not surprisingly, there was very low staff turnover reported in these organisations and job satisfaction was high:

*CMgr1 emphasises 'the family' feel to the organisation . . . Another senior manager says, 'yes, my best story of the 111 launch is the person who first took the first out-of-hours call 17 years ago, also took the first 111 call and she was so proud . . . Now we need to extend the service, so we don't get wiped off the map. We need to tender for the larger areas; but not get so large that we lose that personal feel'.*

*Observation, call centre, site 2*

*CMgr1 tells me that their staff turnover is very low; many staff have been here a number of years. She says how good the staff are and that [the organisation] places a strong emphasis on providing good care. She says that '[the caller] may not remember your name, but they remember if they get good care'. This comes across in how call advisers speak to patients (e.g. attempting to personalise the service by telling the callers their name). She says that call advisers 'take at least 15 seconds between calls to "recover" from calls . . . they are patients not call centre customers'.*

*Observation, call centre, site 4*

*CallA4: That's the nice side of the job, where . . . at the end of your shift say, 'I helped that person today, that person that might have . . . come to some serious harm, I was able . . . to help, you know, prevent that'. So there's some side of it that's not all hard work and stress.*

*CallA3: And some depressed people, they can start off by saying, I'm going to kill myself, and at the end of the call, if they say, 'oh, I feel a bit better now' . . .*

*CallA4: [You] made that difference.*

*Focus group, site 4*

The skills required to perform the call-handling role were described in detail in our previous publications<sup>18,27</sup> and therefore we do not expand on this aspect in much detail in the present study. However, as indicated in the previous chapter when describing the work performed, call advisers possessed a broad range of skills such as negotiation, probing and listening skills, as well as empathy, to enable them to carry out their role effectively.

Across sites call-handling role responsibilities were varied. Although in some cases call advisers only answered calls in other cases they had a broader, more flexible, set of responsibilities. For example, in site 2, in addition to handling calls, some call advisers sat on the reception at A&E and used NHS Pathways to assess walk-in arrivals, sending them either to A&E or to the out-of-hours service, which was located in the same building. At sites 3 and 4 call advisers also took on some administration roles such as liaising with other services. In contrast, at sites 1 and 5 the call adviser role was more delineated with a narrower set of responsibilities.

In all sites a number of the call advisers have been promoted into supervisory roles. As identified in *Chapter 3*, these staff had different titles in different settings, such as call supervisors and liaisons. The role was used flexibly across sites with call supervisors performing slightly different roles in each setting, from helping staff to deal with difficult calls to handling enquiries between the call centre and NHS 111 service providers and managing shifts and/or auditing calls. For example, at sites 2 and 3, call supervisors were involved in auditing call advisers' calls. At site 2 call supervisors were also involved in delivering training. In contrast, at site 1 such responsibilities were performed by a dedicated audit and training team. In addition, many supervisors continued to answer calls. In many cases call supervisors were people who had been identified as competent call advisers. However, the nature of the role, which was pivotal in terms of making sure that the NHS 111 service was delivered effectively, meant that these workers required a much broader set of skills including the ability to manage call advisers and manage relationships with front-line NHS 111 providers.

Although call advisers generally appeared to be happy taking on supervisory roles, we saw some resistance from call advisers to the concept of being trained as auditors. This related to both concerns about working relationships with other call advisers and also concerns that, although there might be opportunities to acquire new skills or responsibilities, there was not necessarily a corresponding recognition in terms of pay:

*CallA6 says that call advisers have been asked if they would be willing to train in audit and are being offered training for this. She thinks that it would be uncomfortable for her to audit her peers ('how can I judge them when the next day I'm standing up and asking "what shall I do with this call?"'). She says that taking on this additional responsibility wouldn't result in any higher pay 'so I'm not sure it's worth the hassle . . . I will do the training and then see from there'.*

*Observation, call centre, site 3*

The emergence of these flexible supervisory roles had also been observed in our previous work in sites 1 and 2, suggesting that they were not solely a feature of the introduction of NHS 111. Instead, the role seems to have emerged in response to the rising call volumes combined with the demands of using NHS Pathways, the complexity of the work and the use of non-clinical workers for triaging calls. At each of our sites call centres described an expanding workforce employing more call advisers, clinical advisers and staff supporting call-handling activity, such as auditors and trainers. Some of this growth was the result of organisations expanding to cover new or larger geographical areas, but the introduction of NHS 111 and NHS Pathways itself increased the need for staff even where the size of the area covered did not change (e.g. sites 1 and 3). To accommodate the growing workforce four sites moved premises or extended their existing premises (one site was a new service but was still expanding in terms of the number of staff).

### Clinical advisers

The clinical advisers were from a wide variety of backgrounds and included nurses, paramedics, mental health nurses and midwives. Sites 1 and 3 particularly used a mix of nurses and paramedics in the role; it is likely that providing both 999 and NHS 111 services impacted on the number of paramedics in this role. At sites 4 and 5 many clinical advisers were recruited from NHS Direct and at site 5 they came from a variety of backgrounds – nurses, midwives, paramedics and mental health specialists, with staff speaking of the benefits of a diverse clinical workforce. In site 2 clinical advisers were employed by a separate organisation in a different location.

The primary responsibility of these workers in each setting was to speak to callers when the disposition had been 'speak to nurse'. Clinical advisers would use their clinical expertise to assess callers' needs. However, in addition, these workers took on a much broader set of responsibilities such as managing call advisers and providing support for difficult calls. In several sites (notably sites 4 and 5) we saw them adopt the role of 'floor walkers' – resulting in the presence of experienced clinicians who could answer any queries and support and keep a watchful eye on the activity of call advisers, especially newly trained call advisers:

*CMgr2: Yes, floor walkers . . . have got to happen, really.*

*Interviewer: And what would their role be?*

*CMgr2: . . . if any of the call handlers are struggling where to go with the call, or they don't quite think the disposition that they've reached is . . . they've got access to somebody straight away, when they need them. At the minute . . . when you're needing help, people are on the phones . . . you're just sat there waiting for someone to come free. You haven't got . . . that time to sit there. You're conscious calls are waiting to get through. You've only got a few seconds to be able to make these decisions, whether it's the right one, wrong one.*

*Focus group, site 4*

Clinical advisers also undertook a range of auditing and training responsibilities, which demanded skills beyond their clinical experience and training. Some clinical advisers seemed to value this expansion of their role and the opportunities it presented for them, although the start-up of NHS 111 and the challenges it presented as the system bedded in was perceived by some to have temporarily limited such development:

*ClinA1: There's a lot of development in the company, there's a lot of opportunities from a nurses' point of view [although] at the moment . . . everything's gone on the back burner. I just hope that . . . once it settles down, once we get 111, and get established and . . . we're up and running, then we can start to continue to develop. We've got nurses who are going through a nurse practitioner course . . . I hope that opportunity is going to arise again [. . .] So I hope everything settles down, and the company continues how it was, with lots of development and lots of opportunities.*

*NP1: . . . that's one of the benefits of being integrated with the out-of-hours, because there are different varying career progressions, isn't there?*

*ClinA1: There's lots . . . of opportunities within the company.*

*Focus group, site 4*

### Professional boundaries: clinical and quasi-clinical roles

Within NHS 111, call advisers are non-clinical staff who perform clinical work (triage/clinical assessment) previously performed only by professionals. Call advisers at most sites position themselves as non-clinical workers by identifying themselves as call advisers when answering calls and often explaining to patients that it is not part of their role to diagnose or prescribe.

*CallA20 says [to the caller], 'we are not clinicians so we can't really diagnose, but we just need to know what the main problem is. Is the rash under the arm the main concern?'*

*Observation, call centre, site 2*

*The patient asks CallA9 'I'm due for insulin shall I give it to myself?' CallA9 is quick to inform the patient, 'I'm not a prescriber', and asks 'is the leg the main problem?'*

*Observation, call centre, site 1*

However, at the same time, the nature of the role involves clinical assessment, albeit supported by a computer. The everyday performance of asking clinical questions allowed these call advisers to identify themselves not as unskilled, generic call centre workers but as doing complex health-care work. Offering clinical information and advice, supported by NHS Pathways, adds a greater clinical component to the role. Call advisers often enjoyed being able to give this advice and felt that it was valued. Call advisers internalised knowledge of the system and the clinical information that it contained and consequently were able to anticipate questions before being prompted by the software. This was especially noticeable at sites where NHS Pathways had been deployed for several years. Additionally, those who had worked with the system for some time (999 and out-of-hours) drew on personal and experiential knowledge about medical conditions or health care:

*[The manager] says that due to the nature of the work, they have renamed their call handlers as 'call assessors' to better reflect the job that they do.*

*Observation, call centre, site 3*

Call advisers from the ambulance trusts tended to assert their 'clinical knowledge' to a greater degree and some call advisers spoke of clinical knowledge or knowledge outside of the system and crucially identified themselves as skilled workers, although they clearly recognised the distinction between themselves, clinicians and managers. Call advisers clearly distinguished their call-handling role from other non-health call-handling roles, and felt that their identity was more akin to health-care workers than call centre workers. There were some requests for a recognised qualification for NHS 111 call advisers as a means of formalising and recognising the training undertaken and legitimising call adviser identity.

*CMgr1: [I would] like a recognised qualification, and a title as a health care . . . something to do with health in it so that they realise that they're not just . . . you can be a call handler for a catalogue firm, or anything like that. I'm not belittling that . . . but just to recognise the work that they're actually doing.*

*CallA4: We're almost health-care providers now, giving health-care advice, aren't we?  
[general agreement]*

*CMgr2: It's got a lot of responsibility attached to it, and I don't think people realise [. . .]*

*CMgr1: . . . the other day, somebody collapsed in [shopping centre] in front of me. I went up to this lady, and says, 'I've got no medical knowledge', and I waited for this first aid person to come. But I turned to [colleague], and she says, 'well, really, you shouldn't say you've got no medical knowledge, because you do Pathways. You have got medical knowledge'.*

*CallA4: And we do life . . . life support.*

*CMgr1: . . . basic life support, so . . . but really, we've not got a title [. . .] a recognition, that this is a clinical environment.*

*CallA4: We're giving health advice, aren't we?*

*CMgr1: Recognised to the outside world that you've achieved this qualification . . .*

*CallA1: It's like, when we answer the phone, we say... '111 call handler'... I think some people instantly... don't want to talk to you, because they think, well, you're not medically trained [...]. Because we say call handler it sounds more office-y and not health care.*

*Focus group, site 4*

However, balanced against this identity as a 'health-care worker' was the belief across all sites that clinical input (from trained clinicians) is necessary to support call adviser assessment and mediate the system. The sense that clinical assessment and decision-making – and the responsibility that it carries – should be a clinical role was particularly strong in site 4. Call advisers at this site often commented that clinical advisers have the clinical skills to be able to manage more risk and the responsibility of home care and are 'paid' accordingly. They did not believe that taking such a responsibility was part of their job:

*CallA4: It depends on the nurse, so some nurses might be more confident to say, you can manage those symptoms at home. Depends how... how demanding the patient is, on what the nurse has done, why they've given them an appointment.*

*CMgr1: I've noticed, if you're sat with a nurse... I was probing, and then she was taking what I thought... like, well, more... what I would have considered a risk, really, than I would have done as a call handler, reading it black and white.*

*CallA4: Yes, because they know more.*

*CMgr1: Because they know more, and they've got more information, and I felt quite uncomfortable that they were trying to push me to go further, with... than I would have wanted to go.*

*CallA1: That's how I felt when I started, because I sat with a nurse all the time... I found it really helpful in one way, but in another way, not, because they were asking me to think out the box, which I couldn't. I kept trying to say, I'm a call handler, and I can't go off from what's in front of me. I can't think clinical like you.*

*Focus group, site 4*

*CA6 was critical of the call handlers who just exited, rather than triaging further to discover whether this history was relevant to the particular call in hand. She mentioned several times that some call handlers felt that they shouldn't have to deal with the difficult cases because they weren't nurses, not trained or paid to do that kind of thing.*

*Observation, call centre, site 4*

*CallA16 says that 'we are not clinically qualified to make clinical decisions' but 'probing introduces an element of clinical decision making/can require a degree of this'. He says a number of times about not having clinical knowledge.*

*Observation, call centre, site 3*

'Inappropriate' dispositions have a knock-on effect of increased workload, but there were also concerns about patient safety despite slightly contradictory concerns about the risk-averse nature of NHS Pathways. Frustration and blame were levied at call advisers and the technology:

*ECP5 comes over and says 'come into the consulting room so I can show you these calls'... describing 111 as 'flawed and inappropriate'. He says that [the information about the call says that this] patient is 'under investigation for cancer and has a productive cough, as reported by his wife... but he doesn't have a productive cough, he doesn't have cancer and he doesn't have a wife – she died 20 years ago'. It's unclear how this error has occurred but the call handler is held responsible for inputting incorrect information.*

*Observation, UCC, site 1*



*ECP2 also has concerns about whether the service is safe for patients, which mostly relate to sending patients that need emergency department care to the UCC instead. He says that 'someone will die'.*

*Observation, UCC, site 1*

As a reaction to this, some call advisers were compelled to demonstrate their clinical knowledge, despite their lack of clinical training, and were forceful in characterising their role as a skilled – albeit non-clinical – job:

*CallA27 tells me that someone from [an IT company] has been observing call handlers and is reportedly going to be a Pathways trainer but has not used Pathways before. 'I think she was shocked by the number of calls and felt she had a lack of qualifications to do the job. I told her the job needs all sorts, qualified clinicians, GPs. You know, we're not trained; you need all of us. We're not qualified clinicians, but it's a qualified job, it takes experience'.*

*Observation, call centre, site 2*

*CallA2 perceives that [some] doctors 'talk badly' to call handlers and don't acknowledge their experience or skills . . . She tells me that she often makes it known to doctors calling 111 that she knows something about biology, or understands what is wrong with the person, reiterating 'I'll make the doctor know I'm aware; I'll say "so it looks like it's a stroke doctor, is that right?"'*

*Observation, call centre, site 1*

However, these attitudes towards call advisers were by no means universal, with some UCC clinicians acknowledging the skill required by call advisers and the complexity of the work. 'Blame' for perceived incorrect dispositions is sometimes directed at the technology rather than at the call advisers themselves:

*GP2 says that he thinks the call advisers do a really good job and are 'undervalued'. He says that they do 'a very hard and serious job . . . one that sometimes involves quite complex decisions . . . but they are not always given the credit for this'.*

*Observation, UCC, site 3*

*ECP2 clarifies: 'the call handler had not done anything wrong, but the triage didn't come out right'. She appears a little reluctant to talk further but says 'call-handling is increasingly becoming a skilled job'. She adds that she used to work for NHS Direct: 'I had enough of using algorithms as a nurse, I found it hard, let alone as a call handler with no clinical knowledge'.*

*Observation, UCC, site 4*

Some clinicians felt that call advisers could perform clinical assessment but needed additional training to extend their skills. Others commented that call advisers were not the problem and that the 'system' might be:

*GP1 says that she thinks 111 'is better than NHS Direct used to be'. She says that the problem with NHS Direct was that you had 'clinically qualified nurses who just used to follow the system and send every patient anyway'. She says that you might as well use non-clinical call handlers as they are less costly, but the end result is the same [i.e. most of the patients end up with a 999, emergency department or UCC disposition anyway].*

*Observation, UCC, site 1*

In addition to the blurring of role boundaries between call advisers and clinicians, there was also some blurring of boundaries across different clinical professions. Clinical advisers triage, make decisions and assess clinical risk within NHS 111, so stepping into the domain of the GPs who have traditionally delivered out-of-hours triage. Although there is long history of nurse telephone triage and therefore this is not new, we note its presence within NHS 111. NPs and GPs were performing very similar roles in some sites. Professionals working within NHS 111 are delegating tasks to other disciplinary groups, such as the prescribing of medication by NPs and ECPs. In sites where ECPs or NPs worked alongside GPs in UCCs,

typically these staff undertook similar roles across sites in dealing with face-to-face appointments and home visits.

*ECP2 says that GPs do '99.99% of the home visits' . . . but they share the UCC attendances. The UCC also sees walk-in patients as well. He says the ECP staff are a mix of nurses and paramedics [he himself was a paramedic].*

*Observation, UCC, site 1*

There were also some differences in the roles they assumed across sites. For example, there was a local protocol in one of our organisations under which only GPs (and not ECPs or NPs) assumed responsibility for call backs to patients with mental health problems and ECPs rather than GPs tended to go on more home visits (site 4).

As with the relationship between clinicians and call advisers, tensions about role boundaries also existed between professionals. There was criticism of clinical advisers at call centres for lacking expertise, being reluctant to make clinical decisions and referring cases 'upwards' to the UCC. It is important to note that, although these perceptions were present in all sites, they were more extreme in site 1 than in other sites.

*ECP2 questions the experience of the clinical advisers – '[they are not] sufficiently knowledgeable to make the necessary clinical decisions' – and says when the service first started they took on a lot of nurses that had little or no experience of telephone triage, resulting in a lot of cases being 'referred up the chain'. The call handlers refer the call to the nurse advisers/supervisors [within the call centre] who then in turn, refer the calls to the ECPs and GPs here at the UCC.*

*Observation, UCC, site 1*

*GP2: I had a child down as an urgent and when I got there they were just asleep and doesn't need to be seen . . . 111 creates inappropriate prioritisation.*

*GP1: There are also only a handful of nurses who can deal with things fast and effectively, GP triage is better, it's more efficient than nurse or 111.*

*Observation, UCC, site 5*

## Communication and relationships across NHS 111

We have seen in *Chapter 3* how call advisers collaborate with clinical advisers and call supervisors. In addition to this, call advisers often worked together with other call advisers on more complex calls, actively helping colleagues (i.e. by looking up information). We have used the term 'team' to refer to groups of staff who work together within call centres (call advisers, clinical advisers, managers, trainers and auditors) and also teams of people who work together within UCCs (GPs, NPs, ECPs, reception and administrative staff). Team support was strong at all call centres, both in teams that had worked together for some time and in teams that were relatively new. Support also included praising and reassuring one another:

*Call handlers seek advice or reassurance from other call handlers sitting with them fairly often. This kind of group support seems an important part of the role.*

*Observation, call centre, site 2*

*After a call where the call adviser found it difficult to obtain an answer from a caller who was 'difficult', the clinical adviser suggests that these types of cases really help people learn. She suggests that she herself also learns from this. There is a sense of mutual solidarity against the difficult nature of the work, and displays emotion work to make the call handler feel better [. . .] There is a sense that this type of call can happen to anyone.*

*Observation, call centre, site 5*



*The clinician says to one of the call handlers, 'good investigation . . . well done'. It seems that the call handler's probing identified a piece of important information that crucially affected the disposition the patient received.*

*Observation, call centre, site 3*

Friendly humour illustrated the close working relationships important in a pressurised and sometimes stressful environment. Among call centre staff, humour contributed to a sense of being a team, community or 'family' and was a means of mutual support. Humour and laughing together was a means of bringing people closer together, building trust, cementing relationships, strengthening the team and equipping them to withstand stressful situations:

*CallA7's phone rings again and he exclaims, 'why is it only me taking calls?' There's lots of laughter; CallA7 jokes 'shh . . . this could be someone dying on the end', laughing some more, before taking the call and the laughing stops.*

*Observation, call centre, site 2*

There were also typically strong working relationships between call advisers and clinical advisers and call supervisors or managers. There was an inherent respect for the clinical skills of their clinical colleagues from call advisers and call supervisors, and for the most part this respect was mutual in that the clinical advisers acknowledged the skills of their non-clinical colleagues. Relationships were weaker when call advisers and clinical advisers worked for different organisations in different locations.

*CMgr1: We've always had . . . and we really do have clinical respect, and I think it's important . . . if I take my children to casualty, I want somebody clinical to see them [laughter].*

*CallA2: Yes, but I think what's changed now is that they've got respect for us because they realise . . .*

*CMgr1: . . . We've . . . we've got clinical respect for them, and we know, obviously, the importance of their clinical training . . . They've also got respect for us, because they know how hard our job is . . . they're brilliant. They're trying to help us all the time.*

*Focus group, site 4*

*CallA27 says, 'I don't know what to do, she has no worsening symptoms, but she's been told to call back. I need to keep it in-house'. The call advisers opposite advise, 'you could put it through to the doctor', which he does. After the call CallA27 says 'it's all about keeping it in-house, keeping it with 111 and not sending it to [clinical advisers outside the organisation]. That one was sent internally as GP triage, as a red (urgent) flag, but was probably not red; we just want to keep it in-house'.*

*Observation, call centre, site 2*

There were some differences in communication and team working between staff at different sites. This appeared to be primarily influenced by the spatial configuration of the call centre and by the organisational culture of the call centre. Co-location and close proximity of clinical advisers to call advisers and call supervisors appeared to foster an environment of respect, approachability and mutual support, and supported successful implementation. At sites 1 and 2 there appeared to be a more visible hierarchy between clinical advisers and call-handling staff, with a separation in communication between these. At site 1 this seemed to be partly because the call centre is large (and based over two sites). Although communication levels were high between call advisers and call supervisors, they less frequently called on the clinical advisers for assistance (and this was usually by telephone). At site 2 relationships were weaker with the clinical advisers, who were based elsewhere. Here, there was little communication and no sense of being part of the 'same service'. The relationship was limited to 'warm transfers' of calls, which involved minimal communication between call advisers and nurses. When the out-of-hours GP was on site, relationships with the GP appeared functional, often characterised by a lack of communication in general, although we did observe some informal communication. Supervisors tended to mediate between the GP,

call advisers and/or patients if needed. 'So far this evening, I haven't really seen the GP interacting with the call advisers or supervisor, other than to say he is staying for an extra hour' (observation, call centre, site 2).

At site 3 the routine deferral of decisions to clinical advisers (see *Chapter 3*) suggested a clear hierarchy but there were high levels of communication between all staff in the call centre (including call advisers, supervisors, clinical advisers and the ambulance dispatcher), where there was extensive face-to-face communication, discussion and 'joint decision-making' about a particular call. Site 4 appeared to be characterised by a much flatter hierarchy than most other sites and there was not the same sense of division or rank. Call advisers and clinical advisers sat alongside each other in one of the call centres and there was a sense of 'mucking in', that is, collaboration, to 'get the job done'. The supervisor role was undertaken by a non-clinical supervisor or a NP on any given shift. The site had worked hard to reduce tension between workers and there was a strong organisational culture of valuing all workers:

*The clinical lead says that 'it's important you make yourself approachable and to reassure the [call advisers] I'm here, even if it seems like a silly question'. She says that fostering an environment of approachability is key [...] 'Sometimes they have a clinical question . . . it's a clinical doubt "niggling" in their minds; I've told them it's best to come and talk to me or a nurse adviser if they are in any doubt'.*

*Observation, call centre, site 4*

At site 5, located in a large call centre, we observed high communication levels, generally via telephony, with call advisers typically phoning through to clinical advisers for assistance, although there were some face-to-face queries. Call advisers and clinical advisers were co-located in one room, with clinical advisers generally stationed at the end of blocks of call adviser stations for easy communication and to offer advice when needed.

There are inevitably individual differences and individual incidents that give rise to tensions between staff, typically because of pressures on the service and/or clinician perceptions of inappropriate dispositions:

*After the call the clinical adviser comes over to the call adviser. The atmosphere seems a bit tense. She says, 'I probably wouldn't have reached a different disposition, but might have been able to stall them for a bit' [the ambulance service is under pressure so the clinical adviser would conduct a telephone consultation to 'buy some time']. I sense there is a bit of a 'power struggle' here.*

*Observation, call centre, site 3*

The clinical knowledge and expertise in using NHS Pathways is shared across call centre teams and has implications for the skills required for call-handling that extend beyond manipulating the computer system. Mutual support is offered as a learning experience. The integration of different workers in a wider organisational hierarchy supports and maintains the NHS 111 service. In all sites the spatial location of the work facilitated – or hindered – communication and sharing of knowledge. The operationalisation of the CDSS and call-handling work played out in different ways determined by the configuration of the call centre, but it seems unlikely that call centre activity would be so successful in environments in which staff did not have this connectivity. The ability to work in and manage teams is therefore an essential set of skills needed for successful implementation of NHS 111 and testing of teamworking skills is actually part of the recruitment process for call advisers at some sites (e.g. site 1).

Strong team relations were also observed amongst staff at all UCCs:

*ECP2 compares this [UCC] to [another]. He says [the other] is more private [there are individual consulting rooms rather than cubicles] but the downside is that staff are 'locked away . . . all day . . . you don't see anyone . . . [Here] is much more social, we can ask each other for things . . . [it is a] much nicer environment for working in'. They do seem a very sociable team; there is a lot of informal conversation between seeing patients.*

*Observation, UCC, site 1*

However, relationships between UCCs and call centres were sometimes poor. Some of these tensions have been discussed earlier, for example frustration over perceived 'inappropriate' dispositions (see *Chapter 3, What is the work of urgent care centre clinicians?*) and tensions around professional boundaries (see *Professional boundaries: clinical and quasi-clinical roles*).

*ECP2 says that there is some tension with [call centre provider] about triaging and [what the UCC perceive as] incorrect dispositions. He says that 'they never admit they are wrong'.*

*Observation, UCC, site 1*

Proximity (co-location) and history appear to have influenced the working relationship between call centres and UCCs (see *Chapter 6*). For the most part call centres and UCCs are separate services (the exceptions are that site 2 has the out-of-hours telephone consultation GP located with it; site 4 has one call centre co-located with the UCC; and at site 5 the UCC is downstairs from the call centre but there does not appear to be a close working relationship between them). Communication between UCCs and call centres is often limited to NHS Pathways information transmitted electronically and some telephone communication to follow up a patient or request additional information; therefore, the relationship is a 'faceless' one. In one site it appeared that efforts were made to foster closer relationships and understanding, viewed positively by UCC clinicians.

*ECP3 explains that a number of call advisers came to shadow the ECPs: 'now they understand our role better and send to us rather than A&E, or realise when they don't need us at all'.*

*Observation, UCC, site 4*

The findings from the survey suggested that sites overall were neither positive nor negative about communication with other NHS 111 services (*Table 11*). Overall, site 5 was more positive about experiences of communicating with other NHS 111 providers, agreeing that they were easy to contact, that it was not time-consuming and that communication was supportive. However, it should be noted that these data are based on call centre staff only and not UCC staff. It is possible that this could explain the difference.

**TABLE 11** Staff agreement with statements about communication with other NHS 111 providers

Site	<i>n</i>	Strongly disagree, <i>n</i> (%)	Disagree, <i>n</i> (%)	Neither agree nor disagree, <i>n</i> (%)	Agree, <i>n</i> (%)	Strongly agree, <i>n</i> (%)	Mean (SD)	<i>F</i> -value; <i>p</i> -value
<b>Easy to contact other services</b>								
1	53	5 (9.4)	11 (20.8)	15 (28.3)	19 (35.8)	3 (5.7)	3.08 (1.09)	
2	41	2 (4.9)	3 (7.3)	20 (48.8)	15 (36.6)	1 (2.4)	3.24 (0.83)	
3	60	1 (1.7)	8 (13.3)	27 (45.0)	19 (31.7)	5 (8.3)	3.32 (0.87)	
4	106	6 (5.7)	19 (17.9)	48 (45.3)	28 (26.4)	5 (4.7)	3.07 (0.93)	
5	43	0 (0.0)	9 (20.9)	4 (9.3)	21 (48.8)	9 (20.9)	3.70 (1.04)	<i>F</i> = 3.86; <i>p</i> = 0.004
<b>Communication with other services is often necessary</b>								
1	53	0 (0.0)	3 (5.7)	10 (18.9)	29 (54.7)	11 (20.8)	3.91 (0.79)	
2	40	1 (2.5)	2 (5.0)	12 (30.0)	19 (47.5)	6 (15.0)	3.68 (0.89)	
3	60	0 (0.0)	8 (13.3)	28 (46.7)	21 (35.0)	3 (5.0)	3.32 (0.77)	
4	105	0 (0.0)	7 (6.7)	31 (29.5)	52 (49.5)	15 (14.3)	3.71 (0.79)	
5	43	0 (0.0)	3 (7.0)	10 (23.3)	19 (44.2)	11 (25.6)	3.88 (0.88)	<i>F</i> = 4.72; <i>p</i> = 0.001
<b>Communication is time-consuming</b>								
1	53	0 (0.0)	6 (11.3)	15 (28.3)	16 (30.2)	16 (30.2)	3.79 (1.00)	
2	40	0 (0.0)	8 (20.0)	16 (40.0)	14 (35.0)	2 (5.0)	3.25 (0.84)	
3	60	1 (1.7)	7 (11.7)	34 (56.7)	17 (28.3)	1 (1.7)	3.13 (0.72)	
4	107	1 (0.9)	8 (7.5)	43 (40.2)	41 (38.3)	14 (13.1)	3.55 (0.85)	
5	43	0 (0.0)	11 (25.6)	17 (39.5)	11 (25.6)	4 (9.3)	3.19 (0.93)	<i>F</i> = 5.52; <i>p</i> < 0.001
<b>Communication is supportive</b>								
1	53	5 (9.4)	8 (15.1)	22 (41.5)	17 (32.1)	1 (1.9)	3.02 (0.97)	
2	41	1 (2.4)	6 (14.6)	21 (51.2)	8 (19.5)	5 (12.2)	3.24 (0.94)	
3	60	1 (1.7)	2 (3.3)	34 (56.7)	17 (28.3)	6 (10.0)	3.41 (0.79)	
4	107	1 (0.9)	11 (10.3)	52 (48.6)	35 (32.7)	8 (7.5)	3.36 (0.80)	
5	43	0 (0.0)	4 (9.3)	13 (30.2)	15 (34.9)	11 (25.6)	3.77 (0.95)	<i>F</i> = 4.62; <i>p</i> = 0.001

SD, standard deviation.

## Training at call centres

The nature of call-handling training was documented in our earlier work.<sup>18</sup> We do not seek to repeat this work; rather, we offer a summary and draw out key differences across sites and present observations about training practice and training needs not identified in our previous research.

### Initial training

Initial NHS Pathways training for call advisers and clinical advisers is structured around a core training package produced by the CDSS developers and was standard across the sites. Call advisers undertake a 2-week programme that they must complete – and pass – to demonstrate initial competency before taking calls in the call centre. Sites provide up to 2 weeks' further mandatory training that varies from site to site but typically includes health and safety training, data protection, safeguarding children and vulnerable adults, organisational procedures, and training in other ICTs [e.g. Aداstra (Advanced Health & Care, London, UK), appointment booking software]. Training typically took place in small groups in classrooms located on site in contact centres.

Training was challenging for call advisers and required considerable personal commitment in terms of time and the amount of information that they are required to learn. There are additional pressures in that call advisers are guaranteed a job only if they pass the training. Call advisers perceived training to be intense and to require huge commitment as the quote below typifies, but typically they felt that the training programme largely prepared them as much as is possible for their role as a NHS 111 call adviser:

*CMgr2: I think [the training] was too in depth. Too much information in a short space of time.*

*Interviewer: So how long is that training?*

*CMgr2: Two weeks . . . But it just doesn't stop there, after the two weeks' classroom, full-time training . . .*

*CMgr1: Plus, we had to travel to [name of a city] to do our training, which is all right, but . . . for those of us with children . . . So you were going out first thing in the morning, you were coming back late at night, you were so tired, you were trying to learn a new system; I'll be honest with you; I were nearly in tears some days . . .*

*CallA1: . . . you've got homework to do. There was too much to learn in too short space of time.*

*CallA2: Very intense. Very intense.*

*CallA3: Yes. Very intense.*

*CallA5: And . . . you'd also got assessments to do while you're doing it [. . .]*

*CMgr2: And then you've got exams for that, then you go home at night, you've got to revise, you've got refresher questions, because you know you've got an exam the following day, so you're not getting home till six, seven o'clock at night, you're revising to start the following morning again, and it's too intense.*

*Focus group, site 4*

For some staff undergoing training there was a particular challenge when they had other part-time jobs that they had to fit around. It could be difficult for them to attend standard training sessions and both staff and their organisation had to be flexible, with special bespoke courses delivered and workers sometimes having to use holiday periods from other jobs to allow time for training.

### Coaching

Following the initial training period all call advisers spend up to 2 weeks observing call handling in practice and then being observed and coached themselves by more experienced staff (either call advisers or clinical advisers), often referred to as 'coaches' or 'buddies'. Once call advisers are deemed by their coach to have met the required competency levels they are given the green light to work alone. Coaching is an integral part of training for newly qualified call advisers in all organisations and serves two key functions. First, it provides call advisers with support, which is important for staff retention. For some call advisers 'going live', taking real-life calls, was met with trepidation or fears about competency. Particular types of calls worried new call advisers and required support. These included calls about seriously ill children and calls from patients at risk of suicide.

Second, monitoring of call advisers ensures that they do not develop bad habits and that they are performing 'safe' assessments. Call advisers were almost unanimous in their views about how they benefited from support from more experienced colleagues.

*The senior manager is closely observing a new call handler – seated just behind her. The senior manager tells me the new call handler has only been there a couple of days and 'is doing really well' and that supporting and observing newly qualified call handlers 'stops us losing them' [. . .] 'Staff tend to stay'.*

*Observation, call centre, site 2*

*CallA4 is newly qualified . . . in her second week after her initial 4-week training. She explains that she has to sit next to an experienced call handler because she's new. This helps her feel much more secure.*

*Observation, call centre, site 1*

*Some of the mental health calls are particularly hard to deal with . . . A newer call adviser (CallA4) says, 'after training, every time I shadowed people, they had people with mental health problems and that really panics you. It's like your first ambulance or your first suicide'.*

*Observation, call centre, site 5*

### Ongoing call adviser support, training updates and auditing

All call advisers were required to undertake training updates, for example when changes had been made to NHS Pathways. There were also almost continual updates as a result of changes to practice, service standards, targets or service provision. Often updates were delivered in the form of an e-mail or written correspondence and call-handling staff often undertook 'update' training courses that could be single- or several-day courses or online courses. In one site (site 3) we observed call advisers using a training NHS Pathways computer in the call centre to test out their decision-making for a previous call. As we have seen throughout this and the previous chapter, call advisers develop their skills by drawing on the knowledge and support of their call-handling and/or clinical colleagues, and even experienced call advisers may seek assistance from time to time. Informal coaching was intrinsic in all sites and supplemented more formal audit activity.

*The call adviser explains to colleagues what she had asked [the patient] and how she used different ways to ask the question – she was trying to rule out meningitis. A clinical adviser says that you are not meant to mention meningitis, gently saying that she would put it as just rule out life-threatening illness. She is correcting the call adviser's practice in quite a gentle way – but also making sure the other call advisers hear, as if it is a general observation about how to do the work not a direct criticism of [the call adviser].*

*Observation, call centre, site 5*

*CallA6 takes a call from a 24-year-old male with a racing heart and breathing problems, following the 'solvents/drugs' pathway. It results in a 'go to ED' disposition. After the call CallA6 says that she wasn't sure whether to choose the 'solvent/drug abuse' or 'palpitations' pathway. She uses the NHS Pathways training laptop to test what the outcome would be following different pathways. She tries to match the triage to the outcome the call handler feels it should be.*

*Observation, call centre, site 3*

Some sites reinforced training messages and tips for practice, for example through posters (site 2) and through digital technology or e-mail correspondence.

*A [television] screen is on a loop showing NHS Pathways hints and tips (e.g. which pathway to use for different symptoms). The dispatcher explains, 'this is things for call takers to be aware of. It was the auditor's idea in order to make call takers aware of things to remember, where there have been problems or useful phrases'. One slide reminds callers to 'use the term "clinician" or "clinical colleague" rather than "paramedic or nurse"'. In total there are 100 slides.*

*Observation, call centre, site 3*

We have described the auditing process in some detail in our earlier work<sup>18</sup> but, briefly, alongside the CDSS there is an extensive audit procedure (imposed by the NHS Pathways developers as a condition of use). Call advisers are subject to considerable appraisal, monitoring and surveillance of their work. The process across sites is very similar. All calls are stored and call advisers have a minimum of five of their calls analysed in detail each month. The calls are assessed and feedback provided to call advisers. Overall, call advisers viewed auditing as a process that was generally heralded as a necessity for maintaining standards. It also served to ward off complacency:

*CallA9 says that 'calls are audited every week and we get feedback two to three times a month'. He tells me about a 'bad audit . . . I got 25% which is very low, because I'd become complacent . . . a [patient] called with earache. I knew what the outcome would be so I didn't ask all the questions. It turns out she had a rash as well and I didn't get that. It was good to have auditing; it gave me a wake-up call. Now I get 100% or 95%'.*

*Observation, call centre, site 5*

Call advisers also spoke of the benefits of listening to your own calls to improve performance:

*CallS2 explains that a selection of recent calls is audited and staff receive immediate feedback, positive and negative. Call advisers and nurses do the auditing. Call advisers also listen to the call so you can hear yourself, for example there was someone kept saying 'yer'. When they heard themselves they said 'is that really me? From hearing herself on tape she could learn from it'.*

*Observation, call centre, site 5*

When call advisers were less positive about auditing there was a sense that they felt that it was unjust to be assessed on a sample of calls:

*CallA17 says that the dispatchers and supervisors are also expected to take five calls per month and be audited on these, but she doesn't think that this is fair to be sampled on all five calls – no margin here. Call advisers recognise that some calls they take will be better than others and there's an element of luck as to which ones will 'get audited'.*

*Observation, call centre, site 3*

Graphs showing performance (in relation to anonymised colleagues' performance) are available at all sites to self-monitor performance.



The survey findings showed that there was some variation between sites in whether staff agreed that the monitoring and auditing of call-handling performance ensures safe call assessment (*Table 12*). Staff at site 1 were less likely than staff at all other sites to agree that monitoring and auditing ensures safe call assessment. Staff at site 5 were more likely than staff at sites 1, 3 and 4 to agree that it was necessary. In all sites clinical staff were less likely than non-clinical staff to agree that monitoring and auditing were necessary (significant in all sites except sites 2 and 5).

Auditing and feedback are carried out by a combination of clinical advisers, call supervisors and experienced call advisers. This role is pivotal in monitoring whether targets and standards are being met and in monitoring how call advisers answer calls and whether this meets with NHS 111 and local standards. Training and auditing are undertaken by different staff in each setting. At site 1 auditing was primarily performed by non-clinical audit staff who also had responsibilities for the wider auditing of ambulance provision. These staff were supported by the clinical supervisors in relation to auditing and trainers (former call advisers) to develop NHS Pathways skills. At sites 2 and 3 this role was performed by a non-clinical auditor. At site 5 there was a dedicated training role and the trainer was responsible for delivering all call adviser and clinical adviser training. At sites 4 and 5 clinical advisers also played an important role in auditing and monitoring – reviewing calls and feeding back results and explaining how to improve practice. At site 5 these staff were also involved in reviewing and addressing calls that had led to complaints from a front-line service provider.

Across our observations we also noted that the degree of confidence amongst call advisers to perform their work varied between sites. To some extent this is likely to be a consequence of how long the organisation and the call adviser had been using NHS Pathways. However, we also suspect that some of this confidence may arise from who is delivering training and the extent to which trainers encourage call advisers to take responsibility for dealing with a call. Although at all sites there was recognition that call advisers should not go beyond what they felt able to do and risk an unsafe disposition, quite where this boundary lay seemed to be different. At sites 1 and 5 our observations were that call advisers felt that they had a high level of competence to deal with most calls themselves whereas at other sites we observed much higher levels of referral to and/or consultation with clinical advisers and supervisors. These seemed to be sites where there was lower trust in the system and/or the ability of non-clinical operators to handle complex calls:

*A call from a 78-year-old man, short of breath, recently diagnosed with a collapsed lung. He has awoken with pain this morning (when coughing/moving). He says, 'I'm suffering like mad . . . I need something to relieve the pain'. The disposition is 'see GP < 12 hours'. The call adviser asks the caller if he would be able to come to the UCC. 'No, it takes too much out of me'. The call is warm transferred to a nurse. After the call, the call adviser says, 'you don't know what to do, do you?' This particular call adviser is very reluctant/unsure in completing a call without clinical involvement.*

*Observation, call centre, site 4*

### Further training needs

Call-handling and clinical staff identified a number of training needs over and above those already being met. Some clinicians were of the opinion that call advisers would benefit from some basic training around history taking to better prepare them for their role and to enable them to provide more useful information for clinicians in the output from NHS Pathways. However, this request may have stemmed from dissatisfaction with the NHS Pathways output rather than with the call advisers' skill levels.

*I suggest that call handlers are not clinically qualified and perhaps that makes it difficult for them to perform history taking. ECP2 disagrees. He feels that they could take 'much more useful information' with fairly minimal additional training. He says that it doesn't necessarily need a clinical person to do the job, but it does need a better trained call handler – one with some training around history taking.*



**TABLE 12** Staff agreement with the statement 'Monitoring and auditing of call-handling performance ensures that call assessment using NHS Pathways is safe'

Site	Staff group	n	Strongly disagree, n (%)	Disagree, n (%)	Neither agree nor disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Mean (SD)	F-value; p-value
1	Non-clinical	28	2 (7.1)	4 (14.3)	13 (46.4)	8 (28.6)	1 (3.6)	3.66 (1.15)	F = 15.28; p < 0.001
	Clinical	21	3 (14.3)	3 (14.3)	9 (42.9)	6 (28.6)	0 (0.0)	2.29 (1.38)	
2	Non-clinical	23	0 (0.0)	0 (0.0)	3 (13.0)	10 (43.5)	10 (43.5)	4.30 (0.70)	F = 1.42; p = 0.23
	Clinical	11	0 (0.0)	0 (0.0)	2 (18.2)	7 (63.6)	2 (18.2)	4.00 (0.63)	
3	Non-clinical	23	0 (0.0)	0 (0.0)	13 (56.5)	6 (26.1)	4 (17.4)	4.04 (0.56)	F = 5.51; p = 0.023
	Clinical	29	0 (0.0)	1 (3.4)	17 (58.6)	5 (17.2)	6 (20.7)	3.55 (0.87)	
4	Non-clinical	47	1 (2.1)	4 (8.5)	2 (4.3)	28 (59.6)	12 (25.5)	3.98 (0.92)	F = 5.16; p = 0.025
	Clinical	52	4 (7.7)	4 (7.7)	12 (23.1)	25 (48.1)	7 (13.5)	3.52 (1.08)	
5	Non-clinical	28	1 (3.6)	0 (0.0)	0 (0.0)	12 (42.9)	15 (53.6)	4.43 (0.84)	F = 1.86; p = 0.18
	Clinical	11	0 (0.0)	1 (9.1)	2 (18.2)	4 (36.4)	4 (36.4)	4.00 (1.00)	
Total	Non-clinical	149	4 (2.7)	8 (5.4)	11 (7.4)	79 (53.0)	47 (31.5)	4.05 (0.92)	F = 26.45; p < 0.001
	Clinical	124	14 (11.3)	7 (5.6)	38 (30.6)	45 (36.3)	20 (16.1)	3.40 (1.17)	

*ECP5 says that it should be staffed either by nurses, or the call handlers need more training. He says, 'anyone could do triage but they need the appropriate training'.*

*Observation, UCC, site 1*

Several call advisers also suggested that call advisers might benefit from spending some time on ambulances and considered that this might impact on the way that they asked questions in the future. At some sites (site 1 and 2) some call advisers had had such an experience and appeared to value it for supporting their understanding of the wider context of their role:

*CallA12 and CallS3 are chatting to me about their experiences of going out observing in an ambulance. CallS3 says she saw 'a stroke' and CallA12 says 'had a cardiac arrest that died'. He seemed a little shocked by that. I ask CallA12 if going out in an ambulance is part of their training for Pathways or 111? He tells me that's it's not, but that he arranged it himself as he thought it would be useful. He thinks it would be useful for call handlers to do this: 'it helps you know a bit more about when ambulances are despatched; for example you might probe a bit deeper, or ask questions in a different way'.*

*Observation, call centre, site 2*

In addition to spending time on ambulances, better understanding of the wider range of NHS 111 front-line services to which call advisers referred callers was also thought to offer value. To this end a number of staff at one of our sites (site 5) had been on a tour of the NHS 111 front-line providers so that they could get to know what was available: 'I ask CallA2 about the Directory of Services options. He shows me a map on the wall with lots of photos attached to it and tells me that the call advisers were taken on a tour of the different service providers' (observation, call centre, site 5).

Analysis suggested that there is potentially a need for additional training for clinical advisers and call advisers around safeguarding children and adults. In one site we observed a challenging and emotional call about a possible domestic violence case. The clinician dealing with the case identified the need for such additional support. Gaps in support were identified in several sites and included a perceived lack of support for call advisers following emotional work and particularly following difficult calls with patients with mental health problems:

*Clin8H puts the caller on hold: 'I really don't know what to do with this'. The call is from a 21-year-old female with a 2-year history of abuse but the caller reports she and her child are not at risk tonight. Her husband is present. The call handlers and clinician discuss whether this is a 'vulnerable adult case only' or child too. Clin7H: 'the child is potentially at risk too'. Clin8H: 'She is clearly worried that if the police are called that they can't help her'. Clin8H questions if they should have selected the 'vulnerable adults' Pathway. There's a lot of uncertainty about what to do. Clin8H suggests the case should be referred to the vulnerable adults team.*

*Observation, call centre, site 5*

*ClinA3 tells me that she is particularly worried about whether call advisers have enough support following mental health calls. She says that all call advisers will have had some training but that all the clinical advisers are worried about debriefing 'so we're going to make clinical supervision available for call advisers too. We should look after the staff . . . call advisers don't get enough support and they are making very important decisions'.*

*Observation, call centre, site 4*

Overall, our observations revealed variability amongst sites in a number of aspects of training and audit, which may result in some inconsistency across sites and differences in the confidence of call advisers. The nature of NHS 111 work is that calls are variable and complex and it is very hard to be able to train for this complexity and to assume that all calls can be handled by non-clinical staff simply following the system. The impact of local variations in training and audit procedures on the standardisation of service delivery warrants more detailed investigation.

## Summary

Across all sites, deploying NHS Pathways and piloting NHS 111 led to workforce expansion, with more staff being employed and additional roles created. The ability to engage in effective teamwork is important both to provide emotional support to colleagues and to provide advice in the case of difficult calls. At all sites a number of call advisers were promoted to a new role of call supervisor. Clinical advisers provided home management advice but also had additional roles in managing and sanctioning dispositions and in supporting, training and auditing call-handling activities.

Although formal roles exist in each organisation the boundaries between them are often blurred. Call advisers lack clinical training but there is consistent evidence of them performing complex health-care work, albeit supported by the technology. We observed that clinical knowledge gathered from the system and from clinical staff becomes internalised in call advisers who then draw on this knowledge when handling calls. Despite this there are clear beliefs amongst the workforce that input from clinical staff is essential for supporting call advisers and to allow them to take clinical responsibility for more complex calls.

Participation in training can be challenging for call advisers. It requires considerable commitment in relation to the amount of learning that is required for the role. Completing the required training programme also places demands on their time, which is a particular problem for part-time and night-shift workers. Ongoing formal and informal training was provided at all sites through coaching, support from call supervisors and clinical staff and feedback from the audit process. There is considerable variation across sites in how these activities are performed and by whom.



# Chapter 5 Results: what is the technology?

## Introduction

In looking at the technology used by the NHS 111 service we considered the CDSS, which is used by call advisers to triage and manage calls to the service, and the wider network of technologies needed to deliver the service. These other technologies included a range of digital ICTs – telephony, various software and data storage systems including geographical information systems, patient record systems and databases, and the computer hardware. This chapter describes the core technologies used by the NHS 111 service and looks at three particular issues that arose in our analysis: trust in technology, failures related to technologies and integration of technologies.

## The technologies used to deliver NHS 111

NHS 111 seeks to deliver telephone clinical assessment and provision of information, including direction to the most appropriate service when necessary. The aim is that these tasks are completed within the first call (i.e. without the need for a call back). Clinical assessment and triage is supported by a single CDSS, and callers can be given health information or self-care advice or can be directed to the most appropriate service available at the time of the call using an up-to-date skills-based Directory of Services (DoS). Calls assessed as requiring an ambulance can be immediately directed to ambulance dispatch without the need for reassessment and, when necessary, calls can be transferred ('warm transfer') to a clinician or, if this is not possible, placed in a call-back system. The integration of the CDSS and the DoS should allow callers to be directed to appropriate local services without the need for re-triage, and, when possible, appointments can be made at the relevant service. As well as recording information about the calls for audit and monitoring within the NHS 111 service, the various technologies used also allow records to be shared between health-care providers and services, for example a call summary created during the call can be forwarded to the receiving service or to the patient's GP.

The core technologies that we focus on here are the software and databases used to manage, record and display information about the calls, the CDSS used to support triage and management of the caller and the DoS used to identify and interface with local care services. The next four sections describe these technologies to provide background information to situate our discussion of failures, trust and integration.

### *Case/record management and booking systems*

The NHS 111 services used different electronic case management and booking systems to record details about calls. These computerised systems allowed real-time logging of caller details, including demographic information, time of call and GP details, as well as recording advice given and outcomes (dispositions). These systems also store or record these data for retrospective audit and monitoring of performance.

Four of the sites studied used the Adastra case management system and one used the Cleric case management system [in conjunction with TPP SystmOne (Horsforth, Yorkshire, UK) to book appointments at UCCs]. When watching the call handling for the NHS 111 service these systems are typically encountered first – the initial screens of information populated at the start of the call with basic demographic details are part of these systems. The specific software used in NHS 111 settings is often one of a number of modules or 'solutions' made by the software provider, and may be tailored to the urgent care setting or the NHS 111 service. The Adastra call management system is marketed by Advanced Health & Care and is currently used in a variety of NHS settings, including both telephone services and face-to-face services in hospital, emergency care and GP care. Cleric is marketed by Cleric Computer Services (Congleton, Cheshire, UK) and offers similar functionality and has a history of use in the NHS, notably in ambulance and patient transport.

One site used Adastra to manage urgent care calls but had also introduced software marketed by Valentia Technologies (Dublin, Ireland) to manage 999 calls.

These systems are configured in slightly different ways but all allow the display of patient/call information on a visual display unit (VDU) screen. Some items can be populated by free-text entry by the call adviser whereas others may be populated from a drop-down menu of options or enable automated 'look up' of information (such as an address or a patient care summary). These systems are used at the front end of the call, before the call adviser accesses the CDSS to undertake assessment and triage.

Towards the close of the call the call adviser will, when indicated by the outcome of the call, use other software to manage appointment bookings, view schedules and availability of appointments and send electronic referrals or notification of attendance to other services and, when necessary, to the patient's GP.

### **The computer decision support system**

The CDSS software was developed by a team working within the NHS and it is currently licensed for use by NHS ambulance services for the management of emergency (999) calls. It has previously been used for urgent care services as part of a single point of access telephone service, for primary care out-of-hours telephone services and for managing face-to-face interactions in an urgent care setting. Our previous project examined the deployment of the CDSS in these different settings.

The CDSS is an expert system built on an extensive clinical evidence base subject to a continuous process of evidence review and update. A series of logical algorithms (pathways) underpin questions that the user/call adviser asks the caller/patient to determine the clinical skills required and the time frame in which they must be accessed. The CDSS includes questions that the call adviser is required to ask as well as prompts that are used to 'probe' or to gain more accurate and/or precise information, for example getting callers to describe the nature of chest pain (as 'crushing', 'shooting', 'aching' and so on). The system is used to arrive at a disposition, ranging from an 8-minute emergency ambulance to an appointment with a GP to information on the self-monitoring or treatment of symptoms. For dispositions to primary care or other community services the CDSS is able to identify the skill required to treat the patient and map this to a record of clinical skills in local services using an integrated DoS. This directory, part of the Capacity Management System (CMS), provides information on the location of services, opening times, response times and clinical provision.

The CDSS comprises three modules, summarised in *Table 13*. Module 0 is designed to support immediate identification of life-threatening problems and the pathways here are typically short. It covers the vast majority of 999 calls and provides needs assessment for the despatch of 8- and 19-minute ambulances. Once immediately life-threatening situations have been ruled out, the call adviser moves into module 1, which includes a larger number of pathways designed to assess a wide range of symptoms. At the start of module 1 the call adviser is presented with a 'body map' (which is age and gender specific). The call adviser clicks the computer mouse to select the body area affected and is presented with a menu of pathways. The call adviser selects an appropriate pathway (based on the information provided by the caller and the information presented on screen). The CDSS includes documentation of all clinical conditions.

A further module (module 2) is designed for use by a clinician (usually a nurse or paramedic) and involves a longer set of algorithms for further assessment or for providing care advice.

The CDSS also includes a database of care advice for the call adviser to provide over the telephone depending on the pathway. This includes:

- advice provided during the call [e.g. cardiopulmonary resuscitation (CPR) instructions]
- 'worsening advice' in which the caller is advised to look out for signs of symptoms getting worse in the period before primary care is accessed

TABLE 13 Computer decision support system modules

Module	Summary
0	Questions relate to immediate and imminent threat to life, e.g. chest pain, severe loss of blood/consciousness or not breathing. There is some information filtering, e.g. whether the problem is due to trauma (injury), whether the call is from the patient or a third party, age and gender of the patient
1	Module 1 begins after life-threatening situations have been ruled out and includes a larger number of pathways designed to assess a wide range of symptoms. The call handler is presented with a 'body map' and selects the appropriate body system/area affected; this leads to a list of pathways relating to this area
2	Nurse/paramedic assessment module when there is no obvious emergency. The call is transferred to a nurse for further assessment or provision of care advice. Typically used for more complex calls or when the call handler has arrived at a home care disposition

- interim advice for non-emergency dispositions and for managing symptoms in the period before an ambulance or a primary care response (e.g. pain relief advice)
- home care advice for self-care dispositions in which detailed care advice is provided to support the patient in looking after themselves.

### The Directory of Services

The DoS is a dynamic searchable database populated with information about local services including UCCs, walk-in centres, primary care surgeries, pharmacists and EDs. The DoS contains information about service operation including location and opening times but also information about the available skill set and services offered by each provider. It also contains a set of guidelines or protocols to support the referral process. This database is designed to operate as a 'real-time' system, detailing the services available and open at a particular time of day but also reporting current activity (waiting times, number of appointments free). The DoS automates the process of selecting the relevant service and the call adviser should not need to manually search for the most appropriate service.

### Other software and systems

Call management systems and other software were also used in the NHS 111 services studied. These included digital systems for routine operational information, for example recording who was on shift, activity levels including the number of calls coming into and out of the service, staff engaged in taking calls or on 'rest' periods and time taken to answer. These data were often summarised and displayed on a large VDU/television screen in a central location in the call centre.

Most of the sites allowed call advisers to access other digital resources during and in between calls. This included internal intranet facilities, notably e-mail and shared drives housing documentation, but also external websites. The latter were used to access web pages, for example to conduct Google (Google Inc., Mountain View, CA) searches or to use mapping software to pinpoint a service location. Some sites also gave call advisers access to instant messaging facilities to allow real-time information exchange with other NHS staff and/or to monitor service demand.

Access to web browsers and external websites for call advisers was a key difference between these case studies and our previous project;<sup>18</sup> some sites in our previous project, for data protection and security reasons, had not allowed such access, particularly while a call was in progress. Many of the NHS 111 sites allowed some access to external websites although access to some sites and services, such as social media sites, was blocked. Call advisers used the web to search for additional details about health-care providers and to verify spellings of place names, and call advisers and clinical staff also used these technologies to search for clinical information, ranging from looking up medical terms to researching details about particular diseases or conditions. One call adviser reported that the use of the web was 'probably frowned

upon . . . especially during the day' but proved invaluable for finding information to assist with call management. Another clinician explained her use of the web during an observation session:

*ClinA3 says there are a number of websites nurse advisers can access. For example, you can use an online resource to calculate kg in to stones. She also regularly uses the British National Family Pharmacy and GP notebook, which tells you about diseases. She is keen to talk about the resources she links into, including NHS Choices for details 'on health services near you . . . nurses also use "TOXBASE" to search details about levels of toxicity in various substances'.*

*Observation, call centre, site 4*

## Trust in the technologies for NHS 111

Attitudes towards the CDSS were mixed. Some call advisers were positive about the CDSS and trusted the dispositions made:

*CallA18 is incredibly positive about Pathways: 'Pathways is very good'. She trusts the disposition is correct: 'Pathways tells me; it follows the symptoms not what the patient thinks is wrong with them; it follows the exact symptom, so for example they might phone thinking it's food poisoning, but Pathways will pick it up that it's not food poisoning if it doesn't recognise it from the symptoms'.*

*Observation, call centre, site 1*

But others, on occasion, wanted greater flexibility around the questions they asked as they felt that the CDSS did not provide sufficient information to direct the call 'down' the correct pathway. This was a particular problem for callers who presented with multiple symptoms as these two quotes indicate:

*CallA6 is following the 'cough' pathway . . . CallA6 calls the clinical adviser and gives her a brief summary of the call before putting the caller immediately and directly through. After the call I learn the call was transferred because the [system] was saying it was a cough, but the child also had a fever so it was difficult to know what pathway to follow.*

*Observation, call centre, site 1*

*CallA20 chats to me about the 'rectal bleeding call', telling me she got very confused because the caller was reporting 'multiple symptoms': pain in the back passage, rectal bleed and difficulty passing urine; 'so three symptoms, all potentially quite serious'. CallA20 is a little concerned about this call . . . saying that getting someone to report a 'main symptom' is sometimes one of the hardest parts of the job.*

*Observation, call centre, site 2*

Sometimes this distrust of the technology waned as experience increased:

*The call adviser says, 'I was thinking, what Pathway do I use, because there is no Pathway for pregnancy, but she did describe pressure down there. The more experience of Pathways you get, I knew there would be a pregnancy question in the abdominal Pathway'.*

*Observation, call centre, site 5*

However, doubts about the veracity of the dispositions made with the CDSS might also be reinforced by other knowledge or experience. Call advisers might look up clinical information to 'check' or validate the pathways presented in the CDSS. In some cases the call advisers were able to use the CDSS itself to do this:

*[Clinical adviser] says that mostly NHS Pathways is good but there are a few things that don't seem right. She says that in a call she went down a particular route in the system for a baby and it came out with a particular disposition (go to ED) but when she followed the same pathway for a toddler it came out with a more urgent ambulance disposition. She says, 'look, I'll see if I can show you'. She moves over to the laptops which have the training version of NHS Pathways on them.*

*Observation, call centre, site 3*



Some of the doubts expressed about the technologies were related to the rigidity of the systems used, such as in situations in which the caller did not comply with the offered disposition:

*ClinA3 took this call and asked the patient 'is it a numbing pain, like someone is ringing out a sponge?' The patient still refused an ambulance and 'despite probing, it still came out as an ambulance'. In relation to this case she says 'Pathways doesn't bend, its black and white'.*

*Observation, call centre, site 4*

Another example was when the call advisers did not agree with or 'trust' the disposition:

*I sense a disparity between what ClinA5 wants the system to do and what it actually does. She explains this saying 'I knew what I wanted to do with it, but I feel like sometimes it comes up with a disposition that I don't agree with'. She gives me an example from a call earlier today: 'I had a young baby with a rash today. The problem with Pathways is that it can only assess one symptom. The child had a rash, was not communicating as usual and had sunken puffy eyes'.*

*Observation, call centre, site 2*

Interestingly, clinical staff working in the call centres reported that they found the CDSS to be too 'risk averse', implying that, in their clinical judgement, the system was not offering the correct disposition. This might be seen initially as a mark of distrust of the CDSS. However, they suggested that this feature was positive, that it supplied a necessary 'safety net' allowing them to trust the technology when used by non-clinical staff. Some were happy to follow the CDSS themselves because of this:

*The clinical adviser likes his job and using the system. He doesn't find it restrictive despite his clinical knowledge. Says 'in the end you've got to be safe', describing it as 'safety netting'. I ask if it's harder not assessing face to face. He says sometimes because you can listen to breathing but not see if they've got sweating or pallor as you would face to face. He thinks NHS Pathways is more cautious.*

*Observation, call centre, site 5*

One clinician suggested that the involvement of doctors in developing the CDSS was used to assert the trustworthiness of the CDSS and she found this difficult:

*ECP4 says 'I can see call advisers just going down the wrong pathway'. ECP4 says that she queried one of the algorithms at a 'review meeting' but was told 'well it's been designed by doctors [so it must be correct]'.*

*Observation, UCC, site 1*

Others felt that, although the CDSS could be trusted to be sufficiently risk averse when used by non-clinicians, this had to be actively managed by the clinical staff in the call centre:

*CallA6 has joined the shift . . . he used to be a paramedic on the ambulances. I ask him what he thinks about 111 and Pathways. He says 'it's a very risk averse system . . . you need clinicians as it's so risk averse otherwise you'd end up with an ambulance for everything'.*

*Observation, call centre, site 3*

This view was also common to external stakeholders, notably GPs, who suggested that some dispositions for UCC appointments and home visits were inappropriate:

*I ask GP1 about the types of patients he sees that have come through 111 and if the majority of home visits are to elderly or housebound people: 'the majority are elderly, but there are also inappropriate visits, people with no transport, things like that. It's OK if they are housebound, whatever age they are, but for people with no transport; it's wrong'.*

*Observation, UCC, site 5*

The GPs felt that the technology could not be trusted to deal appropriately with some clinical presentations:

*GP2 says that 'there are some conditions you can pigeon hole [as NHS Pathways does], such as chest pain which are quite clear cut, need to err on the side of caution, but there are other symptoms that are much more difficult for a non-clinician to assess'.*

*Observation, UCC, site 1*

One GP did echo the views of the clinicians in the call centre that the CDSS was necessarily risk averse and that when there were failings this was not because of the technology per se but was the result of human factors:

*The clinical lead talks to me about some of her early scepticism in relation to 111: 'I was very sceptical and tried to find errors, but it is safe and that was my biggest concern. In a lot of cases that don't work quite right, it's not the software or the call adviser that has failed; it's the fact that the patient hasn't given concise information'.*

*Observation, call centre, site 3*

In the excerpt below a call adviser explains why she has made an 'untrustworthy' or incorrect disposition for a patient with (primarily) mental health concerns who also has an apparently more minor physical symptom:

*CallA1 explained to me that sometimes in calls like these, where there is a mix of conditions (i.e. blood loss and behavioural/mental health) Pathways is not so good. 'You have to go down the blood loss Pathway and send an ambulance'.*

*Observation, call centre, site 1*

Call advisers and clinicians alike noted that the pathways relating to mental health conditions were more problematic:

*ClinA5 explains that 'here mental health comes under the behaviour and mood disturbance Pathway'; she seems to be making the point that everything comes under one Pathway as she tells me 'in NHS Direct we had different algorithms for say depression or anger; here, under 111, we cover everything under one Pathway'.*

*Observation, call centre, site 4*

*CallA2: I mean, I'm mental health trained anyway, so it doesn't bother me, but I don't think the pathways accommodate mental illness at all.*

*CallA1: Not enough paths to mental health on there . . . just one thing.*

*CallA4: Yes, it is. It's really poor on that, and that's the other thing, as well, the mental health is . . . really . . . I don't know if poor is the right word, but it's not adequate, it's not sufficient.*

*CallA2: It doesn't cover mental health at all. I mean, I had a call on Sunday, and if I hadn't have been mental health trained, I'd have been totally lost, but . . . she couldn't tell me what was the matter, but I were asking her, you know, like, are you hallucinating . . . are you deluded, are you low, or . . .? Whereas you know, sometimes with pathways . . . it's not there.*

*Focus group, site 4*

Few GPs used the clinical information and triage details provided from the CDSS processes. Typically, they initiated patient consultations – by telephone or face to face – by asking for symptom history and details

again, implying that they did not trust the records created using the CDSS. Some GPs made very sceptical comments about the technology and the wider NHS 111 service.

Survey questions that measured trust in NHS Pathways supported these data. Trust was significantly lower amongst staff at site 1 (mean composite score of 3.06) than amongst staff at site 2 (mean score 3.64) and site 5 (mean score 4.29) ( $F = 12.2$ ;  $p < 0.001$ ). This higher level of trust overall in site 5 is likely to reflect the fact that the survey was not administered to UCC staff. Conversely, lower levels of trust in site 1 are likely to reflect the negative views of the site 1 UCC staff (Table 14). In all sites trust in NHS Pathways was higher amongst call centre staff than amongst UCC staff (see Table 14).

**TABLE 14** Staff agreement with statements about trust in NHS Pathways

Site <sup>a</sup>	Staff group	<i>n</i>	Mean (SD) <sup>b</sup>	Range (min.–max.)	95% CI	<i>F</i> -value; <i>p</i> -value
1	Call centre	32	3.82 (0.96)	1.00–5.00	3.48 to 4.17	$F = 52.00$ ; $p < 0.001$
	UCC	21	1.88 (0.95)	1.00–4.43	1.45 to 2.32	
2	Call centre	25	3.94 (0.49)	3.14–4.86	3.74 to 4.14	$F = 9.83$ ; $p = 0.003$
	UCC	17	3.19 (1.04)	1.00–4.71	2.66 to 3.73	
3	Call centre	32	3.74 (0.60)	2.71–5.00	3.52 to 3.95	$F = 14.54$ ; $p < 0.001$
	UCC	27	3.10 (0.68)	2.00–4.57	2.83 to 3.37	
4	Call centre	85	3.57 (0.77)	1.00–5.00	3.40 to 3.73	$F = 23.61$ ; $p < 0.001$
	UCC	23	2.66 (0.87)	1.29–4.43	2.28 to 3.04	
Total	Call centre	174	3.81 (0.76)	1.00–5.00	3.71 to 3.91	$F = 103.78$ ; $p < 0.001$
	UCC	88	2.74 (1.01)	1.00–4.71	2.52 to 2.95	

CI, confidence interval; max., maximum; min., minimum; SD, standard deviation.

a Survey was not administered at the UCC in site 5.

b Composite score of seven trust statements; higher mean agreement indicates higher levels of trust.

## Technological failures

All sites had contingency plans to cover failures in electrical supply or software malfunctioning. These included having systems for rerouting calls to other sites and/or the use of paper-based back-up systems.

*[The call adviser] shows me a paper version of the system used [when there is a system failure]. It involves an input form and a manual with the opening questions from Pathways and then page numbers to move onto dependent on whether there is a yes or no answer. He is very vague on whether he has actually had to use this while he leafs through the pages but notes that on an early page of the manual is a pathway for taking blood results. He follows this and notes it leads to the same disposition as was eventually agreed by the staff.*

*Observation, call centre, site 5*

The sites used training and sometimes rehearsal/practice sessions to ensure that staff could cope with this type of relatively large-scale technical failure affecting the service. We did not witness any lengthy disruptions to services at any of the sites during our fieldwork. However, we did hear accounts of and witnessed first-hand some examples of technology ‘failing’ temporarily and disrupting aspects of NHS 111 services. This included computer systems freezing and occasionally telephony problems. When telephony

issues occurred this was mostly callers being cut off because they were using mobile technology or occasional line interference:

*CallA11 takes a call but the line is just 'crackling'. ClinA5 is watching: 'what's happening?' The call adviser comments 'she's just getting crackles, that's it'. CallA11 comments that she will have to call the caller back. There's a bit of a discussion about what it could be and it is suggested it might be 'static'.*

*Observation, call centre, site 3*

In one site we witnessed additional telephony problems when transferring calls to nurses at external organisations and patients had to wait for a nurse to call back:

*CallA1 explains that 'I'm going to pass you over to our nurse advisers', but she is unable to transfer the call immediately and tells the patient that a nurse will call back within 10 minutes. I recall that earlier CallA1 mentioned that there has been some difficulty getting through to the nurses at NHS Direct all night.*

*Observation, call centre, site 2*

Technical problems, such as freezing computer screens, sometimes resulted in callers being put on hold or transferred to another call adviser, or call details having to be re-entered, and this could be stressful for staff, but we observed how well managed such crises were:

*The supervisor . . . says that they have been having a 'difficult' day – Adastra has stopped working. I later find out it must have stopped or at least been noticed around 1800 because they were trying to book appointments and they were not going through. There is a bit of tension in the air but it feels like a well-managed crisis.*

*Observation, call centre, site 5*

The findings from the survey suggest that staff feel that NHS 111 technology is reasonably reliable (Table 15). Overall, staff at the call centres were more positive about the technology than UCC staff (a finding that was statistically significant in all sites).

There were particular problems associated with the technology for the DoS. Some call advisers were frustrated that the DoS was not accurate or up to date. Sometimes it did not offer the information needed and call advisers worked around this by using their own knowledge. In one site (site 3) there was almost no use of the DoS, possibly because of the site's geographically small/isolated location: 'As she reads the survey she reaches the question about whether the 'DOS is up-to-date' and comments, 'well, that would be a "no"; it's rubbish' (observation, call centre, site 3).

The findings from the survey with regard to staff views about the DoS broadly confirmed the ethnographic data, with staff across all sites tending to neither agree nor disagree that the DoS is accurate and up to date (Table 16). Staff at site 5 were more likely to agree that the DoS was accurate than staff at all other sites.

TABLE 15 Staff agreement with the statement 'NHS 111 technology works reliably'

Site <sup>a</sup>	Staff group	n	Strongly disagree, n (%)	Disagree, n (%)	Neither agree nor disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Mean (SD)	F-value; p-value
1	Call centre	32	1 (3.1)	3 (9.4)	5 (15.6)	16 (50.0)	7 (21.9)	3.78 (1.00)	F = 18.03; p < 0.001
	UCC	21	5 (23.8)	4 (19.0)	9 (42.9)	2 (9.5)	1 (4.8)	2.52 (1.12)	
2	Call centre	24	0 (0.0)	0 (0.0)	5 (20.8)	18 (75.0)	1 (4.2)	3.83 (0.48)	F = 6.39; p = 0.016
	UCC	17	3 (17.6)	1 (5.9)	6 (35.3)	5 (29.4)	2 (11.8)	3.12 (1.27)	
3	Call centre	32	1 (3.1)	2 (6.3)	8 (25.0)	19 (59.4)	2 (6.3)	3.59 (0.84)	F = 5.08; p = 0.028
	UCC	28	1 (3.6)	5 (17.9)	12 (42.9)	10 (35.7)	0 (0.0)	3.11 (0.83)	
4	Call centre	82	1 (1.2)	7 (11.7)	12 (14.6)	47 (57.3)	15 (18.3)	3.83 (0.87)	F = 14.54; p < 0.001
	UCC	23	1 (4.3)	5 (21.7)	9 (39.1)	8 (34.8)	0 (0.0)	3.04 (0.88)	
Total	Call centre	170	3 (1.4)	13 (6.1)	35 (16.5)	125 (59.0)	36 (17.0)	3.84 (0.83)	F = 60.83; p < 0.001
	UCC	89	10 (11.1)	15 (16.7)	36 (40.0)	26 (28.9)	3 (3.3)	2.97 (1.02)	

<sup>a</sup> Survey was not administered at the UCC in site 5.

TABLE 16 Staff agreement with statements about the DoS

Site	<i>n</i>	Strongly disagree, <i>n</i> (%)	Disagree, <i>n</i> (%)	Neither agree nor disagree, <i>n</i> (%)	Agree, <i>n</i> (%)	Strongly agree, <i>n</i> (%)	Mean (SD)	<i>F</i> -value; <i>p</i> -value
<b>The DoS is accurate</b>								
1	53	12 (22.6)	17 (32.1)	14 (26.4)	9 (17.0)	1 (1.9)	2.43 (1.01)	
2	41	8 (19.5)	13 (31.7)	13 (31.7)	7 (17.1)	0 (0.0)	2.46 (1.00)	
3	60	13 (21.7)	20 (33.3)	22 (36.7)	5 (8.3)	0 (0.0)	2.32 (0.92)	
4	107	14 (13.1)	48 (44.9)	23 (21.5)	19 (17.8)	3 (2.8)	2.52 (1.02)	
5	43	2 (4.7)	13 (30.2)	10 (23.3)	17 (39.5)	1 (2.3)	3.04 (1.00)	<i>F</i> = 3.672; <i>p</i> = 0.06
<b>The DoS is up to date</b>								
1	53	8 (15.1)	21 (39.6)	18 (34.0)	5 (9.4)	1 (1.9)	2.43 (0.93)	
2	41	8 (19.5)	10 (24.4)	15 (36.6)	8 (19.5)	0 (0.0)	2.56 (1.03)	
3	60	11 (18.3)	12 (20.0)	32 (53.3)	4 (6.7)	1 (1.7)	2.53 (0.93)	
4	106	17 (16.0)	43 (40.6)	25 (23.6)	19 (17.9)	2 (1.9)	2.49 (1.02)	
5	43	2 (4.7)	20 (46.5)	10 (23.6)	9 (20.9)	2 (4.7)	2.74 (1.00)	<i>F</i> = 0.68; <i>p</i> = 0.61
SD, standard deviation.								

## Technological integration

The three core technologies – the call management systems, the CDSS and the DoS – need to be integrated to deliver the NHS 111 service. There were some examples in our data of occasions when particular technologies failed and this disrupted the integration of these systems:

*There seems to be some concern over Aadastra and the fact that the disposition was 'clinician call back' but that an ambulance had been sent by the ambulance dispatcher. The dispatcher says an ambulance went anyway, but he appears a little frustrated.*

*Observation, call centre, site 3*

*CallA11 still seems to be having some problems with the system and adds, 'the demographics are meant to be saved, it's not working. I've lost all the demographics details'.*

*Observation, call centre, site 3*

### Integrating with ambulance/999 services

At one site the technical links between the call centre and ambulance dispatch had failed on occasion so a 'workaround' had been devised to manage this – call advisers telephone 999 to check that the ambulance service has received the disposition:

*The call handler says 'you need a 999 ambulance . . . are you happy for this?' An ambulance is dispatched. The patient is put on hold whilst she phones the ambulance service to check that the ambulance has actually been dispatched, then goes back to the patient to confirm this. After the call, CallA1 explains that occasionally the information is not automatically passed to ambulance control. There is a protocol now in place, so that after every 999 disposition, they telephone the ambulance service to check the case has been received.*

*Observation, call centre, site 4*

One clinical member of staff felt that the integration of the urgent and emergency care systems could be improved with the addition of a process that could immediately call an ambulance:

*He would like a 'life-threat' button – [he says] there is one but they can't use it on their system. This would allow them to immediately call an ambulance. He concedes this might be overcautious but feels it would be justified for the few cases it caught.*

*Observation, call centre, site 5*

### Integrating for primary care bookings

The integration of the technologies directed towards booking appointments at UCCs appeared to be a straightforward and largely reliable process. When there was negative feedback it was typically around waiting times so call advisers in some sites moderated the information that they gave to manage patient expectations:

*The disposition is to be seen by a GP practice in the next 6 hours, but CallA4 tells the patient that as his GP surgery is closed she will book an appointment for him at his closest UCC. She seems to easily book an appointment, flicking to the appointment bookings page, for an hour's time.*

*Observation, call centre, site 1*

*I ask CallA8 about the booking appointments system. She tells me that she thinks it works really well. There were some problems at first, because call handlers would book people in and then they'd get to the [UCC] and not be seen at the time they were booked in for and so would get upset about that. CallA8: 'Now we just say, I've booked you an appointment at whatever time it is, but you may not be seen exactly then; this seems to work better'.*

*Observation, call centre, site 3*

When there were problems they appeared to be about single failures in one or other of the technologies used, as in this instance when the call adviser had to manually cancel an appointment:

*CallA1 tells me the 'system is playing up'. It appears the case has gone to an 'appointment booking' and I observe CallA1 approach the supervisor (CallS1) for advice. I listen as CallA1 is advised to cancel the out-of-hours appointment and note 'the patient is happy to see their own GP'.*

*Observation, call centre, site 5*

Feedback from UCC staff suggested that they experienced some frustration about booking appointments. This was primarily related to whether they agree with the dispositions or not, but there is also frustration when call advisers book in 'less urgent' patients and 'use up' more urgent slots. Some UCCs found that it was difficult to manage the additional demand generated by NHS 111 and felt that call advisers were not always aware of the full urgent care workload:

*CallA4 books an appointment for this afternoon. Afterwards she says, 'you get your hands slapped if you book the less urgent appointments in too early'.*

*Observation call centre, site 4*

*The ECP says that the appointment slots are 15 minutes, but complex cases (e.g. requires minor surgery) can take much longer. He recently had a case that took 1.5 hours to treat, resulting in patients 'backing up in the waiting room'. One issue [according to the ECP] is that call handlers do not have access to the same information on screen as UCC staff. Call handlers can see if a slot is free (to make a 111 booking), but cannot see other UCC appointments (e.g. appointments made by UCC staff where patients walk in). 'Slots are sometimes double, triple and quadruple booked'.*

*Observation UCC, site 1*

### **Integrating with other external organisations**

Calls involving third-party external organisations in some aspect of the assessment frequently posed problems as the transfer of technical information and the information and booking systems were not so well integrated.

*CallA13 tells SMgr2 '[name] have completely mucked it [booking an appointment] up'. SMgr2 checks whether there's an appointment for the patient at the UCC. It appears the booking isn't on the screen/system for some reason.*

*Observation, call centre, site 2*

### **Integrating information**

Several stakeholders expressed concern about the quality of call summary information received from the CDSS. We have already noted that most of the GPs did not use the records generated by the CDSS (see *Chapter 3, Managing risk and upward referral of patients*). This appeared to be because of the format and layout of these summaries. GPs said that they would prefer not to have to search down the screen for vital information and would like the call summary to provide a clearer indication of the main presenting problem. They found the positive statements highlighted in blue helpful but negative statements highlighted in black unhelpful:

*'The triage is utter rubbish, it gives us nothing to use'. GP1 continues reading an example of the first part of a call handler's triage from the screen: 'it's not bleeding . . . NO . . . that's because it's a SORE THROAT! No, I know why they ask, but seriously it's utter rubbish'. GP1 shows me how the cases appear on the screen and where it shows the main symptoms, e.g. a 'sore throat', pointing out that,*



*as you go down the triage, 'it turns out it's rectal bleeding . . . The doctors hate Pathways'. GP1 seems to be saying that they need to search down the information on Pathways before finding out 'what's really wrong' and that the symptoms recorded by the call handler are not necessarily a good prediction of the [medical] problem.*

*Observation, UCC, site 3*

*[The clinical adviser] is annoyed that there is little free text allowed. He shows me his own notes in the system, which are far more specific and individualised free-text summaries of individual patients.*

*Observation, call centre, site 4*

The survey results reflected the more negative views of clinicians about the call summary. Clinicians were less likely than non-clinicians to agree that it was useful and this was significant in sites 1, 3 and 4 (Table 17).

There were also information transfer problems associated with accessing the summary in vehicles dispatched on home visits. In the two sites where we spent time in cars (sites 3 and 4), the full call summary was visible in vehicles; however, in site 5, the GP told us that he had access only to the basic patient demographics and the basic symptom information entered in the CMS. We have no way of knowing whether the call summary information was not available or whether the GP simply did not know how to navigate the system.

The DoS was pivotal to the NHS 111 service and needed to be an up-to-date database that integrated information about local services. This was problematic because it required constant updating:

*CMgr2: The Directory of Services is not as I thought it would be. I don't like that bit at all.*

*CallA4: That's the hardest bit for me.*

*CMgr2: It's not up to date, and it's not easy to use.*

*CallA4: No. That's it, it's not up to date . . . Well, it's not up to date, and it's not easy to use.*

*CallA2: You avoid Directory of Services as much as you can, don't you? You just say, oh, let's click next.*

*CallA4: But that's what they want, though, isn't it?*

*CallA2: It's either not going to be the right one . . . or . . . none of them are . . . are appropriate to . . . where you want to send them. So a lot of the time, it does get ignored.*

*Focus group, site 4*

*The DoS launches automatically, it's all integrated so it should be seamless. You get to the disposition and then it launches DoS. It's intelligent, it knows for example [for someone with a broken leg] . . . where to send someone, where there's an X-ray machine. [The system] knows the patient's age, gender, location, symptoms and uses that to interrogate DoS, but it's not perfect, in fact it's confusing. You need to use local knowledge and experience of using the system. The top option should be the one that's most appropriate and then the next one the next appropriate, but I find often it doesn't do that.*

*Call A7, observation, call centre, site 5*

TABLE 17 Staff agreement with the statement 'The NHS Pathways "call summary" about the patient is useful for health professionals'

Site	Staff group	n	Strongly disagree, n (%)	Disagree, n (%)	Neither agree nor disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Mean (SD)	F-value; p-value
1	Non-clinical	28	1 (3.6)	4 (14.3)	6 (21.4)	11 (39.3)	6 (21.4)	3.61 (1.10)	F = 14.71; p < 0.001
	Clinical	21	8 (38.1)	5 (23.8)	3 (14.3)	4 (19.0)	1 (4.8)	2.29 (1.30)	
2	Non-clinical	22	0 (0.0)	4 (18.2)	6 (27.3)	9 (40.9)	3 (13.6)	3.50 (0.96)	F = 2.61; p = 0.12
	Clinical	11	1 (9.1)	3 (27.3)	3 (27.3)	4 (36.4)	0 (0.0)	2.91 (1.04)	
3	Non-clinical	20	0 (0.0)	2 (10.0)	6 (30.0)	12 (60.0)	0 (0.0)	3.50 (0.69)	F = 5.67; p = 0.021
	Clinical	30	5 (16.7)	6 (20.0)	8 (26.7)	11 (36.7)	0 (0.0)	2.83 (1.12)	
4	Non-clinical	46	0 (0.0)	2 (4.3)	13 (28.3)	23 (50.0)	8 (17.8)	3.80 (0.78)	F = 22.89; p < 0.001
	Clinical	52	9 (17.3)	9 (17.3)	17 (32.7)	15 (28.8)	2 (3.8)	2.85 (1.14)	
5	Non-clinical	28	0 (0.0)	1 (3.6)	3 (10.7)	14 (50.0)	10 (35.7)	4.18 (0.77)	F = 2.67; p = 0.11
	Clinical	11	0 (0.0)	1 (9.1)	2 (18.2)	7 (63.6)	1 (9.1)	3.73 (0.79)	
Total	Non-clinical	144	1 (0.7)	13 (9.0)	34 (23.6)	69 (47.9)	27 (18.8)	3.75 (0.89)	F = 53.30; p < 0.001
	Clinical	125	23 (18.4)	24 (19.2)	33 (26.4)	41 (32.8)	4 (3.2)	2.83 (1.17)	

SD, standard deviation.

This was particularly difficult for out-of-area calls and calls requiring dental services:

*A call adviser says, 'If someone calls out of area, you have to go through the whole assessment and then you get to the end and need to offer care and it doesn't link to the DoS properly and you have to tell them to recall'.*

*Observation, call centre, site 4*

*The call adviser says, 'One negative aspect of the DoS is related to dental calls where patients need a dentist's number'. He explains call advisers have to take all the caller's details but then there is no treatment available. All you can do is give the patient a telephone number . . . the DoS 'just gives a single emergency dental number and that's no good [for most patients]'.*

*Observation, call centre, site 3*

There was some optimism that the wider implementation of NHS 111 may improve the DoS:

*Interviewer: So for you, then, when it does go national, will it make your lives easier?*

*CallA2: It should do, if all the information is in the Directory of Services, yes, it should do. Hopefully. At the minute, it's not easy when you get an out-of-area call.*

*CallA1: More out-of-area calls.*

*CallA4: Yes, I was just going to say . . . that's what I wondered. Eventually, I know it's this area that we're taking on, but if the next county and the next county are taking it on . . . won't it all merge . . .? You know, because if they dial out of area, it might come to us anyway, you know, that's what I wondered.*

*Focus group, site 4*

Non-clinical staff were more likely than clinical staff in some sites (sites 1 and 4) to agree that NHS 111 technologies linked together well (*Table 18*).

TABLE 18 Staff agreement with the statement 'The technologies used in NHS 111 connect together well (i.e. allow information to flow between them)'

Site	Staff group	n	Strongly disagree, n (%)	Disagree, n (%)	Neither agree nor disagree, n (%)	Agree, n (%)	Strongly agree, n (%)	Mean (SD)	F-value; p-value
1	Non-clinical	28	2 (7.1)	2 (7.1)	2 (7.1)	16 (57.1)	6 (21.4)	3.79 (1.10)	F = 14.50; p < 0.001
	Clinical	21	6 (28.6)	4 (19.0)	5 (23.8)	6 (28.6)	0 (0.0)	2.52 (1.21)	
2	Non-clinical	22	0 (0.0)	2 (9.1)	8 (36.4)	11 (50.0)	1 (4.5)	2.50 (0.74)	F = 2.64; p = 0.11
	Clinical	11	1 (9.1)	2 (18.2)	4 (36.4)	4 (36.4)	0 (0.0)	3.00 (1.00)	
3	Non-clinical	23	1 (4.3)	3 (13.0)	5 (21.7)	13 (56.5)	1 (4.3)	3.43 (0.95)	F = 0.021; p = 0.87
	Clinical	30	0 (0.0)	4 (13.3)	12 (40.0)	12 (40.0)	2 (6.7)	3.40 (0.81)	
4	Non-clinical	46	1 (2.2)	5 (10.9)	5 (10.9)	24 (52.2)	11 (23.9)	3.85 (0.99)	F = 22.09; p < 0.001
	Clinical	51	2 (3.9)	13 (25.5)	22 (43.1)	13 (25.5)	1 (2.0)	2.96 (0.87)	
5	Non-clinical	28	0 (0.0)	2 (7.1)	2 (7.1)	19 (67.9)	5 (17.9)	3.96 (0.74)	F = 2.60; p = 0.12
	Clinical	11	0 (0.0)	1 (9.1)	3 (37.2)	7 (63.6)	0 (0.0)	3.56 (0.69)	
Total	Non-clinical	147	4 (2.7)	14 (9.5)	22 (15.0)	83 (56.5)	24 (16.3)	3.74 (0.94)	F = 35.94; p < 0.001
	Clinical	124	9 (7.3)	24 (19.4)	46 (37.1)	42 (33.9)	3 (2.4)	3.05 (0.96)	

SD, standard deviation.

## Summary

We examined the core technologies implicated in the delivery of the NHS 111 services. These included the CDSS used to assess and manage calls and the DoS used to locate appropriate services for onward referral when indicated. We also observed the importance of what might be considered peripheral technologies including call activity monitoring and display, internet features including web browsers and e-mail and mapping systems.

Our analysis suggested three main themes of interest for the study, namely trust in technology, technology failures and integration. Trust in the CDSS amongst call advisers is relatively high. There is some appreciation that the system is risk averse and awareness of some areas in which the pathways are less effective or useful (e.g. multiple symptoms). Turning to the theme of technology failures we noted that the providers have established contingency plans for dealing with major faults, but we also noted that the staff in the call centres work hard to make the technology work, often developing workarounds that enable this. The survey suggests that they find the system largely reliable although some problems with the DoS were noted, especially the need to keep this up to date. The key area of integration necessary to deliver NHS 111 was between the CDSS and the DoS, and this appeared to be an area in which there remained some problems, such as dissatisfaction with case records and information about services.



## Chapter 6 Results: organisational contexts and relationships

In this chapter we move from the specific focus on work, workforce and technology, described in turn in each of the previous three chapters, to examine how these are brought together *within* particular organisational contexts and, more broadly still, how the delivery of NHS 111 is shaped by relationships *between* the different organisations involved in its delivery.

### Introduction

The aim of NHS 111 is to provide an integrated service for urgent and unscheduled care, rationalised and standardised to achieve common clinical and bureaucratic outcomes across England. As we have shown earlier, the introduction of NHS 111 has involved the emergence of new types of work, performed by a new workforce, and the careful piecing together of heterogeneous technologies, not just the NHS Pathways CDSS but also secure internet connections, telephone systems, the online DoS and so on. Although so far we have considered this work, the workforce and the technologies involved independently, providing a detailed description and analysis of each, the successful implementation of NHS 111 requires the integration of these elements at the organisational level, in specific settings, and, furthermore, requires new relationships across organisations within the wider health-care economy. In this chapter we explore how this has been accomplished in each of our five case study organisations. The contracts to deliver NHS 111 have been awarded through a competitive process, in which a range of bidders have been active. Our case studies were chosen to capture some of this diversity, allowing us to explore how organisational types, histories and trajectories might impact on the motivation to become a NHS 111 provider and on the delivery of a NHS 111 service in each case.

In this we draw on an understanding of work and organisations which recognises that innovation is not accomplished ‘on the head of a pin’ – in policy documents, management strategies or organisational charts – but is achieved in the everyday activities of individuals and teams with embedded values, practices and relationships.<sup>29,30</sup> It is well known that operational cultures vary across health-care services,<sup>31</sup> that professional cultures in health care are quite distinct<sup>32,33</sup> and that relations between the different urgent and emergency care services can be characterised by rivalry and a clash of cultures.<sup>34</sup>

In what follows we develop a comparative analysis across our case studies. We begin with a description of each, asking:

- What is the nature of this organisation?
- Why did it become involved in NHS 111?
- What is the nature of its relationships with local partners in NHS 111?

Throughout, our concern is to explore if and how these factors shaped the organisation and delivery of the NHS 111 service, with particular attention to how the work of NHS 111 was defined, how the workforce was constituted and how the technologies came into use. Through this discussion it becomes clear that there is considerable variation in the organisation and delivery of NHS 111, shaped both by the nature of contracted organisations themselves and by the nature of their relationships with other organisations. However, our comparative case study approach also allows us to identify the cross-cutting themes that have shaped the development of NHS 111 service delivery. Specifically, our findings draw attention to the importance of the different service ethics associated with the emergency and out-of-hours providers, respectively, the differentiated nature of interprofessional relations across our cases, and the impact of competition for NHS 111 contracts between providers who are also expected to collaborate in the delivery of the NHS 111 service based on interorganisational trust and knowledge sharing.

## Site 1

The ambulance trust delivering NHS 111 at site 1 was established by the 2006 reforms, which consolidated 31 providers in England into 12 larger organisations.<sup>35</sup> Site 1 now provides 999 services to over 2 million people and handles over 300,000 999 calls each year, from the public, doctors, hospitals and the police and fire services, as well as dealing with ambulance transport requests from hospitals and GPs. It operates two call centres including one at trust headquarters and one designed to mirror the first centre as a second, independent 'back-up' facility. The UCCs, operated by a different foundation trust, are located some 20–30 miles from the call centre and can be accessed either by dialling 111 or by walking in.

Historically, the ambulance service in the UK was intended mainly as a call-handling and transportation service and was characterised by a directive 'command and control' culture.<sup>7,36</sup> There have been very clear demarcations between job roles, with little interprofessional working within the service until recent times, and management roles have been occupied by those with a paramedic background. Consequently, there has in the past been relatively little integration between the ambulance service and other parts of the health service, such as urgent care or routine general practice (beyond arranging patient transport). Over recent years, the ambulance service has faced strong pressure to reduce, or at least contain, rising ambulance demand, driven by the introduction of government-monitored performance targets. More recently, policy related to the ambulance service has highlighted the potential for the ambulance service to adopt a more central role in the delivery and performance of services across urgent and emergency care,<sup>7,37</sup> and the service itself has called for a move away from a command and control culture to a more 'visionary, enthusiastic and motivating' approach to leading the service.<sup>7,36</sup> NHS 111 provides an opportunity for the ambulance service to position itself in this central role.

In this wider national context, site 1 has undergone considerable modernisation and reorientation in recent years. Managers describe this as a dynamic and outward-looking organisation, keen to embrace the move towards greater integration of urgent and emergency care and to develop a range of services in addition to 999. This spirit is evidenced by site 1's recently successful application for foundation trust status, which, in turn, affords a degree of autonomy and freedom in how services are provided locally and allows the organisation to trade and make surpluses that can be reinvested in service development:

*We were always . . . known across the country . . . as a forward thinking ambulance service trust . . . in developing a lot of initiatives. A good example might be the introduction of a controlled drug across the whole of the trust . . . not an easy thing to do, but we . . . took the bull by the horns and worked through the policies and the procedures . . . and then took it nationally . . . presented it at a national conference. A lot of other services picked up the work that we did and, introduced [it] into their service. So we're always seen as a high performer . . . a service that was looking to develop and move forward.*

*SMgr2, interview, site 1 (data from previous project<sup>18</sup>)*

*We'd been part of an exemplar project, looking at urgent care. And in there, the stuff that people are talking about now at a strategic level, nationally, we'd already realised that five plus years ago: that patient's want healthcare brought to them, closer. The whole healthcare model's becoming so complicated it's difficult to navigate your way through it; it's not the patient's fault that they don't know how to access and who to access.*

*SMgr1, interview, site 1 (data from previous project<sup>18</sup>)*

In 2006 the trust was one of the early sites to pilot NHS Pathways, the triaging software that underpins NHS 111. NHS Pathways offered the potential to manage the rising demand for the ambulance service as it enabled the service to offer alternative dispositions for less urgent calls. Senior managers had recognised



that deploying this new technology resonated with their strategic aims and that its early adoption was also a way of positioning the trust as a leading trust in the wider NHS:

*The main reason we moved over onto Pathways was because . . . as . . . a dynamic Trust, we thought, if we get a hold of this tool, and we design the front end of it, you'll get it designed for a United Kingdom market, for somebody who knows what they're doing, in other words us, and it should work a hell of a lot better than the alternative.*

*SMgr1, interview, site 1 (data from previous project<sup>18</sup>)*

*I could see the advantages almost immediately . . . even before Pathways had come along, I recognised that . . . we were dealing with an ever, annual increase on the Ambulance Service in demand . . . and we had no control over that. The only way . . . to have an influence on that is to control the outcome, if you like. So even before Pathways, [I was] working with PCTs in developing referral processes across to alternative pathways of care [ . . . ] I could see that [NHS Pathways] was just an extension of that in the work that I was trying to develop locally.*

*SMgr2, interview, site 1 (data from previous project<sup>18</sup>)*

This piloting work of NHS Pathways was successful and allowed the technology to be licensed for wider use. At the same time the process of early piloting allowed the trust to accumulate in-house expertise in the work, workforce and technology that would later underpin NHS 111. Despite very early claims by the CDSS developers that no clinicians were needed to run NHS Pathways, the pilot experience led site 1 to introduce clinical advisers to support call advisers' use of NHS Pathways. Site 1 also developed early expertise in the monitoring and audit of call advisers. Shortly after NHS Pathways was licensed for use, in 2009 site 1 introduced a single point of access urgent care service. This was a new 24/7 single point of access service for two PCT areas in the region (located in a different part of the region), effectively replacing the existing out-of-hours service in these areas. NHS Pathways, along with the acquired expertise in implementing this system, was transferred to this new service. Site 1 had nearly 3 years of experience in recruiting and training staff to use the CDSS as well as monitoring and supporting them and so they were confident that this was viable. The new service combined NHS Pathways with a new CMS allowing call advisers to offer service information (e.g. opening hours of pharmacists) and to book out-of-hours appointments. Building on this experience, in 2011 site 1 replaced the single point of access urgent care service with NHS 111. Being one of the first sites to pilot NHS 111 was a vindication of dynamic diversification and the expertise accumulated over a number of years:

*SMgr1 says that NHS 111 has 'pretty much been my life for the last year or so' . . . He says that he hopes they are in a strong position (to win the 111 contract), with their previous experience, local knowledge and collaboration with an equally strong partner (well-established out-of-hours organisation).*

*Observation, site 1*

NHS Pathways and the subsequent launches of the single point of access urgent care service and NHS 111 resulted in the diversification of both the work and the workforce at site 1. Some of the existing 999 call centre workforce, who mainly worked full-time, were trained to take NHS 111 calls and additional full-time and part-time call advisers were recruited, which introduced a less homogeneous workforce (in terms of age, qualifications and career aspirations).<sup>26</sup> Additionally, both paramedics and nurses were recruited to clinical adviser roles, offering different professional backgrounds and expertise and diversifying the clinical expertise at site 1 by introducing significant numbers of nurses to the organisation for the first time.

This organisational history has shaped the distinctive constitution of NHS 111 at site 1. Managing down demand continues to be a core organisational value and is reflected in call-handler training, which emphasises (more so than in other cases) the need to enforce NHS Pathways dispositions and negotiate firmly with patients (see *Chapter 3*).

In terms of relationships with partners in the wider health-care economy, tensions between the site 1 call centre and the local UCC were notable. Historical separation of the ambulance service from other health-care providers may have played a part here. Although the trust has had a number of years of experience working

with PCTs and other organisations, UCC staff reported a lack of initial consultation over and engagement with the implementation of NHS 111 as well as a lack of communication about ongoing NHS 111 operations:

*ECP2 says there is some tension with [call centre organisation] about triaging and what the UCC perceive as incorrect dispositions – they will ‘never admit they are wrong’.*

*Observation, UCC, site 1*

*The GP lead says that ‘staff perceive’ 111 was imposed on them without sufficient prior consultation.*

*Observation, UCC, site 1*

For the most part the two services appear separate – both physically and in terms of communication. Communication between UCCs and call centres is limited to NHS Pathways information transmitted electronically and telephone communication to follow-up a patient or request additional information. There is little sense that the workers at these organisations are working as part of the same NHS 111 service.

## Site 2

The general practice out-of-hours organisation delivering NHS 111 at site 2 developed from a general practice co-operative established in the early 1990s that provided out-of-hours call handling and GP-led advice and consultation. This NHS 111 site is a smaller service than many of the others, serving a population of a large town and the surrounding suburban area (approximately 140,000 people), but it is part of a larger consortium with two other organisations that provides NHS 111 across a large region. Based on its roots in general practice, the organisation is proud to offer to the local population what it perceives as a quality service and it appears to have a strong patient-centric culture:

*CallA5: But even if [the patient is] not local and it’s further than local, then we will still attempt to help that person.*

*CallA3: No, I think a lot of us, we all do care what we’re doing. You know, we’re not just saying ‘oh well, sorry’. That’s us.*

*Focus group, site 2*

In this context, the short-term motivation for introducing NHS Pathways was to strengthen telephone triaging as the paper-based system did not meet national guidelines for ‘definitive clinical assessment’ within 20 minutes of answering an urgent call:

*[Call-handling] staff couldn’t advise patients at that point – it still wasn’t recognised – even though the PCTs were happy with the way we did things. So we knew we had to . . . do something.*

*SMgr1, interview, site 2 (data from previous project<sup>18</sup>)*

*We were very happy with it; it worked very well [previous protocol system] . . . we won a national award for it because it was so effective. The PCTs locally were very happy and they’ve audited it. And we had a clinical governance system that reviews calls and the outcomes of the calls, and the performance of the operators, the GPs, nurses.*

*GP1, interview, site 2 (data from previous project<sup>18</sup>)*

More widely, though, NHS 111 offered the organisation an opportunity to build on the experience of NHS Pathways and push forward the move towards a more integrated model of urgent and emergency care that had been underway for some time. For example, since 2010 the co-operative had been part of a new local service in which an UCC combined an ED, an out-of-hours service, mental health services and primary care. The out-of-hours service aimed to provide a single point of access for patients, who were encouraged to telephone as the first point of contact. Patients attending the UCC and requiring urgent care were

managed at a reception desk, booked in electronically onto an integrated primary and secondary care system (Adastra) and assessed using the CDSS to direct them to the appropriate service (ED or out-of-hours care).

As a long-established out-of-hours provider in the locality, it is also likely that the organisation recognised the potential threat to its out-of-hours business if it did not tender for the NHS 111 contract. In 2011 site 2 became a NHS 111 pilot as part of a consortium arrangement that included two other organisations. Site 2 primarily took calls for patients in its own locality (i.e. its previous out-of-hours population) but also took calls for other parts of the region when busy. Within the consortium arrangement call handling was provided by site 2 and another consortium partner whereas clinical advice was provided by a third consortium partner, whose staff are located in other areas. Similar to site 1, site 2 had considerable early experience and expertise in using NHS Pathways that it brought to the implementation of the NHS 111 pilot and used to assist its consortium partners:

*I think it's . . . highlighted by the fact that when [a partner organisation] went live, they asked us to go down and help them do it our way . . . to do it the right way! [Laughter] [. . .] We were the ones that were brought in to help them go live [. . .] We were up and running. We'd done our bit, but because they were struggling to do it the way we did it, to the standard that we did it, they actually asked us to go down and help them do it . . . For a big organisation to need us to go down, you know, when we're only a local firm at the end of the day, when [the other larger organisations] go live with their services, it says a lot for what we do.*

*Trainer2, focus group, site 2*

Historically, the organisation employed a predominantly part-time call-handling workforce, many of whom worked a few hours per month on 'zero hours' contracts. The introduction of a new technology and a new service required the employment of more call advisers on more substantial contracts. More call advisers were employed on a full-time basis and existing and new staff had to be trained to use the CDSS. In addition, more staff were required to fill a wider range of roles including additional training, auditing and liaison roles. Because of the consortium arrangement (and because nurse advice was provided by a separate organisation), site 2 remained a GP-dominated organisation. NHS 111 served to relocate some of the work and decision-making from GPs to call advisers and to clinical advisers outside the organisation. It is difficult to determine whether a prevailing GP-led culture at site 2 had any bearing on the relationships with the consortium partner that provided nurse advice services. Such blurring of professional and organisational boundaries may potentially have resulted in some difficult relationships. As we identified in *Chapter 4* (see *Communication and relationships across NHS 111*), for the most part call advisers and clinical advisers worked as separate entities. Working relationships between call centre staff at site 2 and clinical advisers were functional, evident in the minimal communication between these organisations. Call centre staff were very aware of the poor communication between themselves and their clinical advisors, based in a different organisation:

*CallA20 tells the caller: 'rather than you wait for a call, I'm going to try and transfer you directly'. When CallA20 gets through to the nurse adviser she says 'it's the 111 service with a warm transfer for you'. She gives the case number and the caller's name before transferring the call. There's very little else said.*

*Observation, call centre, site 2*

*CMgr1: That's just building the relationships, I think, with the other . . . services [. . .] But it's their understanding of what 111 is as well, you know. They've got to have that engagement.*

*CallA2: We've learnt that communication at some companies doesn't happen.*

*CMgr1: But that's what's most important across the board – to communicate properly.*

*Focus group, site 2*

There was no history of these organisations working together before the introduction of NHS 111. The consortium model highlighted some of the difficulties encountered in requiring organisations that have no embedded working relationships to work together. Staff at site 2 reported feeling a loss of control over outcomes and care provided for ‘their patients’. For an organisation that is very oriented to the needs of the local population, which emphasises that it is a local workforce with local knowledge, staff found this arrangement difficult. Staff at site 2 were concerned that consortium partners might not share their values or have their local knowledge. Staff expressed concerns that, if they lost the NHS 111 contract, patients in their local area would see a decline in service quality. Although staff at site 2 were not against change – indeed site 2 was one of the early adopters of NHS Pathways and a NHS 111 pilot site – perhaps as an organisation it could be argued to be quite inward looking with its focus on local services:

*CallA3: I think we've lost a bit of the control of 'the whole', you know. The control's going out of your hands at a certain point . . . Before, you could . . . watch the development and the process [of the call] going through. Now sometimes . . . you're in a situation where you don't know what's happening [to the patient].*

*Focus group, site 2*

*Trainer2: But . . . they're not local [another call-handling organisation] . . . they don't have the knowledge that we have of the patients and the demographic and the services. . .*

*CallA3: They're just going to be another patient . . . just going to be another number in a queue . . . It's not going to be. . .*

*Trainer1: A personal service [. . .] The fear for me is that if patients don't get what they want, and are being passed from one to another, that they will actually just start turning up in A&E departments and walk-in centres, and bypassing.*

*Focus group, site 2*

The lack of a strong relationship between consortium partners was further compounded by the competitive nature of NHS 111 procurement. The three organisations involved in the pilot consortium recognised the potential temporariness of the arrangement in that they were required to retender for the contract from 2013. Competition between consortium organisations destabilised the arrangement for the provision of NHS 111. Site 2 formed a strategic alliance with one of the consortium organisations with another as a competitor (with whom it had a better relationship) but ultimately it lost the contract to the third consortium partner (to which, ironically, it had provided initial training in NHS Pathways). The consortium model, and lack of working relationships historically, appeared to make this model of NHS 111 provision much more difficult than, say, a single organisation providing call handling, nurse advice and UCC provision (such as site 4).

### Site 3

The ambulance service delivering NHS 111 at this site was established by the 2006 reforms and provides 999 services to about 140,000 patients. It is one of the smaller NHS 111 sites, covering a more isolated geographical area, which makes it difficult to integrate with a larger population or service. The call handling is based in a smaller call centre located on a main hospital site. If patients require further assessment or treatment they are referred to an integrated urgent and emergency care centre based at the same hospital (which provides services for walk-in patients and ED attendances as well as for referrals via NHS 111). Similar to site 1, there is pressure to manage demand for ambulance services and for the ED. The key difference here is that, even before the launch of NHS 111, there has been a close working relationship with other services in the locality, including primary care, the ED, out-of-hours services, mental health services and community care. Indeed, the call centre has also taken out-of-hours calls alongside

999 calls since 2006, and had shared 999 and out-of-hours technical links. Staff emphasise that there is a willingness to work together and integrated working practices are valued:

*And the shared system with [walk-in centre/UCC] . . . we've carried over since 2006, we'd already got that really close working relationship.*

*ClinA1, focus group, site 3*

*We actually all talk to each other anyway . . . We don't have the same bureaucracy, we have different bureaucracy, but actually, I can phone up somebody in another department and go 'can we just talk about this a minute'? Whereas, it's perhaps not easy when you go across organisations. It is nice that we are . . . all using the same policies . . . We had a lot of it set up already.*

*SMgr1, focus group, site 3*

NHS Pathways was introduced at this site a few months before the introduction of NHS 111 in anticipation of launching the service. The CDSS replaced the prioritisation system for 999 calls and separate protocols for out-of-hours calls (for these calls call advisers recorded basic details about the call and passed them to a GP for telephone triage). The technology introduced standardisation across urgent and emergency care so that both 999 and 111 calls were assessed in the same way. The launch of NHS 111 required the site to employ more call advisers and more call supervisors to manage staff and clinical advisers. Unlike some of the other sites, the introduction of NHS 111 did not radically change working patterns for call advisers (they typically worked 12-hour shifts taking both 999 and out-of-hours calls and therefore just replaced out-of-hours calls with NHS 111 calls). The organisational nature of this ambulance service very likely influenced its decision to employ paramedics rather than nurses in the clinical adviser role (there are only a minority of nurses at this site). The site regards clinical decision-making highly, which is reflected in its decision to have clinical advisers routinely check and sanction all 111 calls that result in a 999 disposition (see *Chapter 3, Sanctioning and moderating dispositions*), suggesting that it more explicitly values human clinical judgement over technological decision-making.

NHS 111, underpinned by NHS Pathways, was seen as an opportunity to build on existing integrated services, to provide a model of health care that better achieved 'the right care at the right time and in the right place' for patients: 'That's what 111 is. It's about sending the most appropriate resource or appropriate care of what the patient needs, rather than what we've done historically, one size fits all, because it doesn't' (SMgr1, focus group, site 3).

Past experiences of integrated working meant that NHS 111 provision was not such a huge leap in thinking from what was already being provided:

*Prior to 111, we had a single number anyway . . . so in essence we were doing the 111 service already in a certain guise . . . I'm not allowed to say it was just a number change for us, because it wasn't, there was a lot of other things that went with it, but in essence, we . . . did just change the number that people were calling.*

*SMgr1, focus group, site 3*

Tendering for the NHS 111 contract early on allowed the organisation to be in charge of its own destiny, warding off potential threats (such as being taken over by a larger neighbouring organisation). Site 3 was also driven by the desire to continue to provide local services for local people:

*CallA2: We are run from here . . . [The patients] do like that . . . when you say, 'oh, you're a patient with [name of practice] . . . which doctor's it?'*

*ClinA1: Yeah, [when we say] 'do you know, it's in the [walk-in centre/UCC]'. 'Oh, yes, yes, we know it'. And you say, 'yeah, that's it, yeah, go under the canopy'. 'Oh, you're on the island, are you?' And people do . . . like that.*

*Focus group, site 3*

*Whilst you could . . . in theory, do it from a national call centre or . . . [another area] take over the calls . . . but, actually, you lose so much more. Again, it's this integrated working in [the call centre] because you've got the local district nurse, you've got the local mental health crisis line. Sometimes it's not all about saving money. It's about . . . this quality of service to the public.*

*SMgr1, focus group, site 3*

The organisation was motivated to provide an integrated NHS 111 service on a small scale. Indeed, its history as a smaller-scale, integrated service appears to have established strong working relationships. The organisation had a clear vision of co-locating services whenever possible to encourage joined-up working and has fostered interprofessional working relationships by co-locating different types of professional roles including call advisers, clinical advisers, ambulance dispatch workers and the district nursing team (with imminent plans to integrate a mental health team). As we saw in *Chapter 4*, co-location of workers has aided the sharing of knowledge within teams:

*ClinA1: Since NHS 111 . . . district nurses joined us . . . this is a huge advantage because we get 999 calls . . . for, 'oh, my dressings have leaked' [or] 'my catheter's blocked', and we can sort it direct with district nursing. Whereas . . . two years ago we'd be sending an emergency ambulance because we were having no choice in the matter because of the triage systems that we used to use and we hadn't got such good links with the district nursing service.*

*DN1: And some calls, they would sit in the queue . . . for a clinical adviser. Sometimes you can just see that actually a district nurse is more appropriate, so we can just take that straightaway now.*

*Focus group, site 3*

*We're very much looking forward to the mental health teams joining in [. . .] it is going to be a vital link, in the whole organisation of the room . . . If you have the people in their separate locations, you have this silo working, whereas . . . within the room . . . it's just a matter of, looking across the top of your monitor. You can wave to somebody . . . and you can actually have this exchange of information. We can make computer systems talk to each other . . . but . . . it's easier to go across and talk across the room, than it is to . . . pick up a telephone [or] send an email.*

*ClinA1, focus group, site 3*

One of the 'sacrifices' made when NHS 111 was launched was separating call handling from out-of-hours/UCC provision. Before the launch of NHS 111, call-handling staff worked alongside out-of-hours GPs. Call centre staff report that some information sharing has been lost. There has been some substitution of clinical support so that call advisers are now supported by clinical advisers rather than GPs. Call advisers now 'control' the work of the GPs (see *Chapter 3, Loss of control over decision-making and workload*) but the physical separation of these groups of workers has resulted in less verbal communication:

*CallA2: It was a real break away when we've moved . . . we ran with the doctors down there . . . and then we were sent up here and we were like 'it's never going to work . . . you've got to be with your doctors'. And it's taken 18 months before we think, 'well, it's not so important' but it certainly still would be easier if they were walking through.*

*CallA1: But the difference is that we've got clinicians in the room now haven't we? [. . .]*

*SMgr1: . . . we're looking at ways of how we can . . . Do we bring the doctors' expertise up into this room . . . it's just tentative discussions [at the moment but] it may well become . . . more of a necessity, a more viable way of working [. . .]*

*UCC administrator: [. . .] We communicate a lot by phone now . . . on an administrative level, saying can you . . . just look into this, I'm worried about such and such. So it would be a lot easier if we were all in one giant room together [laughter].*



*SMgr1: We're never going to get the whole building, are we [laughter] as much as I've tried.*

*Focus group, site 3*

Although it might be argued that this site is less ambitious than some of the other sites (e.g. site 1 or site 5), and that NHS 111 has come about more as a way of building on its already integrated services, site 3 does have ambitions to provide additional services in the future, pursuing opportunities to develop telemedicine services that would move its services beyond urgent and emergency care to more preventative/monitoring services:

*If we can have a desk where we can actually monitor [patients] . . . where we can send them home with specific monitoring equipment and monitor them on an acute desk [from the call centre] . . . [then] we can send an ambulance straightaway or we can send a district nurse round or the GP needs to pop around. So technology is driving the NHS 111 service . . . and this is our next phase – assisted technologies, telehealth, telecare, telemedicine. This is where it's coming to its own, where we can now send the most appropriate resource.*

*SMgr1, focus group, site 3*

## Site 4

In Site 4 NHS 111 is provided by a local social enterprise, established in 2007 from the merger of two large, local GP co-operative organisations. As a social enterprise the organisation has a commitment to reinvest any surpluses and is driven by a strong service ethic of patient care. As an out-of-hours organisation, the social enterprise provided out-of-hours care to approximately 760,000 patients across a diverse geographical area ranging from inner city to rural. The organisation currently runs two call centres and 12 UCCs (four of which are also walk-in centres). Similar to sites 2 and 3, the values of the organisation appear to be characterised by being proud of their locally based organisation that has significant experience and knowledge to meet the needs of the local population: 'It was a complete . . . whole service as it was, a continuation of the GP service. It was an out-of-hours GP provider service, and it was in [county], run by [county] people, for [county]' (NP1, focus group, site 4).

Historically, the organisation has had a diverse portfolio of services and, in addition to out-of-hours services, offered forensic/police work, prison services and local community hospital services as well as providing locum GP services during the daytime.

Unlike other providers the organisation has a long history of employing nurses in its services. This includes nurses providing out-of-hours telephone triage and NPs who work alongside GPs in the UCCs. The organisation appears to value the contribution of nursing competencies and certainly the nursing workforce emphasised the career development opportunities within the organisation (see *Chapter 4*). Before the introduction of NHS 111, call handlers answered calls and recorded demographic details before passing the information to a team of nurse advisers for telephone triage. The nursing workforce view themselves as contributing to offering more holistic care – an approach that appears to fit with the patient-centred ethos of the service (see *Chapter 3, Emotion work*).

*ClinA4: I raised issues [with the CDSS team] about . . . the scenario was a 21-year-old lad with constipation. He was at uni. His granddad had bowel cancer, or something, and he was constipated. The call handler went down the pathway and it was constipation. It was nothing, advice. And I went, 'yes, but poor lad, he's doing his exams . . .' As a nurse, I would have said 'what are you worried about? Is it your granddad? Do you think you might have . . .?' And [the CDSS team] said, 'oh, well, if you want to be pink and fluffy' . . .*

*SMgr2: But that is part of the caring, empathic service that they would have mainly got . . . before.*

*NP2: . . . I'm not saying a pathway is not clinically safe, but it deals with a clinical situation . . . I trained in the era where a patient wasn't an appendix . . . it's a person [ . . . ]*

*ClinA1: I think the nurses' roles have changed . . . are changing a lot, and . . . with the pathways . . . we're there to support the call handlers, and to do the auditing and supporting, and then do the calls that need to be finished off . . . that are transferred over to us . . .*

*NP2: And you can add the nursing element into that, but initially, Pathways is meant to deal with symptoms and sort symptoms to the most appropriate [service].*

*Focus group, site 4*

At other sites the motivations for piloting 111 mainly centred around the desire to expand their business (sites 1 and 5) or the desire to achieve greater integration of services locally (sites 2 and 3). At site 4 the organisation recognised that NHS 111 was a potential threat to its out-of-hours business. It applied to pilot NHS 111 primarily because it was concerned about the possibility of a separate organisation handling the calls and referring patients to its out-of-hours service. The threat of this was used to garner local support amongst local health-care professionals:

*We realised very quickly that if you weren't doing NHS 111, you wouldn't be able to front end an out-of-hours service [ . . . ] So somebody else would have done our call-handling for the out-of-hours service. So it was either, get into the pilot and do your best, or lose the opportunity to front end your own service. So there wasn't a lot of option.*

*SMgr1, focus group, site 4*

*[The senior manager] explains two main factors motivated them to pilot NHS 111 . . . Firstly, the potential threat to their out-of-hours service: '[they] recognised the importance of 111'. If they did not bid for the 111 service they would lose the call-handling/triage aspect of their service – 'worth' approximately £1.2 million. Secondly, the 'sell' (or more of a threat) was that the alternative would be [name of an alternative provider]. Support for [site 4] as the provider was garnered amongst local service providers by 'threatening' that [name of alternative provider] would likely be the favoured provider if [site 4] did not go for the contract. [The senior manager] explains that there has traditionally been a degree of hostility from GPs towards [this alternative].*

*Observation, site 4*

In 2011 the organisation began its pilot of NHS 111 but was unprepared for the impact on its existing out-of-hours business. Managers and clinicians described how it was a 'bigger service' than they had anticipated. First, staff did not initially realise that NHS 111 would eventually replace NHS Direct. Second, they had not anticipated the volume of NHS 111 calls (over and above the volume of out-of-hours calls). As the organisation pointed out, there were few data about what the likely demand for NHS 111 would be. This uncertainty placed considerable strain on the organisation – on existing staff and on the finances of the organisation. The implementation of NHS 111 required rapid training of existing call handlers as well as the recruitment and training of new call handlers:

*SMgr1: 111 is replacing NHS Direct, and we weren't aware of that at the start. We weren't aware of the fact that, just by being a free number, that would also increase the workload, and attract a different type of clientele than we're used to [ . . . ]*

*NP4: It was quicker than we expected [implementing NHS 111]. We thought we were going to do a pilot, and it would be evaluated, and then there would be decisions made. We started this pilot, and then next thing . . . they were going live . . . it did feel sudden.*



*ClinA2: It very quickly leapt from being . . . a very short term thing to a very long term thing . . . I have a deputy that works with me . . . and I was told she was going to be seconded for three months. And 18 months later, she's still here [laughter] [ . . . ]*

*Interviewer: And what have been the effects of that, do you think?*

*NP1: Stress*

*ClinA2: Fear . . .*

*NP1: At all levels I think. From . . . senior management, middle management and to the people on the ground.*

*ClinA1: Everybody's wearing three or four different hats and doing extra work over and above what they used to do [ . . . ]*

*SMgr1: We couldn't have done it, unless we'd got such a dedicated workforce. The staff have put up with such a lot of change and alteration to what they were used to, that if they hadn't have been so good and flexible . . . so the goodwill of the staff has been a major part of this.*

*Focus group, site 4*

As a social enterprise, the values and mission of this organisation – driven to reinvest surplus for patient-centred service – are congruent with the overall aim of NHS 111 but the financial reality of this has been challenging, particularly given the unanticipated scale and pace of growth:

*ClinA2: We've not got enough desks, we've not got enough space, we've not got enough computers, we've not got enough phones . . .*

*SMgr1: . . . and you have to provide additional resources because the service is growing . . . you can imagine the cost of the training . . . even if you've got a part-time person, you still have to give them the full-time training. And the impact of that, because when you've got a coach that's with a trainee, the coach is not taking calls, the trainee's not taking calls. Well, it's just so costly to the service. And we're a not-for-profit social enterprise, so we haven't got an awful lot of money . . . to absorb such a massive hundreds of thousands of pounds worth of cost [ . . . ]*

*SMgr3: The idea of [social enterprise] originally was, it would give the commissioners some reassurance . . . because you could obviously . . . rightly . . . any excess we make . . . we plough back into it. And we all felt that . . . as it was public money that was being given to us, that's . . . how it should be. But . . . it means it's very difficult for us to raise any funding because . . . we have got a track record not making money and it's kind of not what we do. But actually . . . I think the sense of altruism that you get from being a social enterprise does . . . does give far more than it takes away.*

*NP2: You know that . . . corners are not being cut for profit. If we are struggling, and sometimes we do struggle, we know it's . . . not because . . . they're trying to cut down so that you can make a profit. Staff know that . . . we've got to be a bit tight, we've got to do this, it's because it's for the patients.*

*Focus group, site 4*

Site 4 recruited more call-handling staff but the introduction of NHS Pathways meant that fewer nurses were required than in the previous model of care. Site 4 was reluctant to make nurses redundant and managed its workforce through the natural attrition of nurses and by reorganising rotas (to match the change from out-of-hours to 24/7 work) and extending the role of nurse advisers to take on additional

tasks including training and audit functions. Although the nature of the everyday work of nurse advisers has changed with the launch of NHS 111, they are valued as an integral part of this organisation:

*Even though we don't have the need for as many nurse advisers in the system overall, everybody that we'd got has still got a job . . . The ratio of nurses that you require, say, on a Saturday morning, has lessened, but you would then use those from a Saturday during the week. We have avoided redundancies by being quite sharp with what we've done with the staff involved.*

*SMgr1, focus group, site 4*

The organisation still very much positions itself as an out-of-hours organisation rather than a 24/7 urgent care organisation. It perceives that one of its greatest strengths in offering NHS 111 services is its history of integrated call handling and local out-of-hours provision:

*You have to remember is that while this is going on 111, our ordinary business that we've always done . . . we're still an out-of-hours service. We've still got commissioners' requirements, CQC [Care Quality Commission] has come in, we're working on that. We've still got our other, everyday business going on, at the same time as 111.*

*NP2, focus group, site 4*

*I think we're in a better position than some of the others that have got a separate 111 service, and a separate out-of-hours. Because I understand that causes an awful lot of conflict, because of . . . systems not flowing properly, patient problems, whose fault was that, and they're both pointing at each other. We know if we've caused a problem in our system, and therefore, we can fix it . . . we don't realise how good we are at that until you go to other areas, and you see it separate, and you think, 'my God, how do they possibly work with that? That's ridiculous'. So we undersell ourselves a lot of the time.*

*SMgr1, focus group, site 4*

The organisation has occupied a dominant position locally in the provision of out-of-hours care and it recognises how changes in policy and commissioning have changed the landscape in which it is operating. The organisation faces a degree of uncertainty in needing to tender for future NHS 111 contracts and has highlighted the nature of competition and its adverse effect on the potential for collaboration and sharing of good practice. Organisations are in the position of needing to protect their existing business:

*There is a strong sense [from senior manager] that their organisation is very nervous about the future [their current 111 contract was due to end in 2013 and they were in the procurement process at this time]. He has a 'horrible feeling' about the direction in which health care is travelling and is concerned that the contract may go to a commercial provider. . . the general direction is to 'commoditise health care'.*

*Observation, call centre, site 4*

*SMgr1: We've found ourselves in a very, very competitive market where everybody wants a piece of our business, hence what I was meaning about the political environment when people decide to ruin your reputation by saying, 'ooh, you're sending everybody here, or you're sending everybody there'.*

*SMgr2: Yes, it's because they want the business.*

*Interviewer: And do you feel some of that has been calculated to achieve . . . ?*

*SMgr2: Yes, definitely. They say it at key meetings, to key people.*

*SMgr3: . . . everybody is now trying to protect their little bit of the NHS cake, and then we're trying to provide a clinical service that overarches over all the providers, and it doesn't work, because whoever's got the contract obviously has to shift the work to other people. I think that's going to be an ongoing issue [ . . . ]*

*SMgr2: Once all this tendering, competitive process has died down a bit, then maybe people will encourage more cross visits to other sites, to see what they're doing, and learning from each other, because at the moment . . .*

*SMgr1: We've put some off [organisations] we don't want to come through the doors until after the competitive tendering is over, because we know that they're going to be up to no good.*

*Focus group, site 4*

## Site 5

Site 5 is a large commercial organisation located on an industrial estate in the suburbs of a major UK city, providing the NHS 111 service to approximately 250,000 patients. The call-handling organisation is well established in delivering out-of-hours care across England. It was originally a GP-led co-operative but over the last 15 years or so the organisation has expanded its business across England, capitalising on 2004 health service reform that allowed GPs to opt out of out-of-hours care. The organisation was successful in securing contracts to provide the service, with its strength being the large network of GPs. The organisation also has a history of nurse-led triage and offering call-handling services to a range of out-of-hours providers.

NHS 111 was a new 24/7 service in this area providing call handling for two PCT areas. Before the launch of NHS 111 in one of the areas the organisation had provided call-handling services for a local out-of-hours service and in the other area it replaced call handling that was previously provided by a GP co-operative. The organisation also provides a range of other services including out-of-hours services, offender health-care services, GP-led health centres and UCCs.

This is an ambitious and expansionist organisation, actively seeking new NHS 111 business as well as looking for other opportunities in other health-care sectors. The motivation for applying for NHS 111 in this area was primarily about the organisation looking for opportunities to continually expand its business across England. The NHS 111 procurement process has offered new business opportunities and the organisation has been very successful in securing new contracts:

*[The senior manager] tells me that [their organisation] has won [the 111 contract] and will go live with 111 in September. They have also won [another area] going live in October, [and another] in December. This will give them coverage of 2.5 million people by December. They have very ambitious plans for 10 million by next April and she tells me they are well on the way.*

*Observation, call centre, site 5*

Although NHS Pathways was a new way of operating call handling, the organisation was well established in providing these services. The organisation appears to have drawn on this experience to recruit, train, monitor and support staff during the implementation of NHS 111. Although the organisation had previously provided call-handling services in this area, NHS 111 essentially was a new service for site 5. There were some existing staff from the previous out-of-hours service but many new call advisers (most of whom had little experience in health care before they started) and clinical advisers were recruited. The implementation of NHS Pathways required all staff to undergo CDSS and NHS 111 training. Staff appeared to be excited at the prospect of starting something new but were very aware that the service was, to some extent, untried

and untested. Being a new organisation meant that it was able to think in advance about the type of staff it wanted to recruit for this new service rather than training existing staff, as was the case at many other sites:

*Well, it was quite exciting wasn't it, because it was a new service and we were the newbies . . . , but I think being the new ones I suppose, we was like the guinea pigs, but we did have good trainers in all fairness.*

*Calls2, focus group, site 5*

*In recruitment . . . we've been very careful to look at the gender mix, the skill mix and the age mix of the staff . . . I was the only man in a team of all women [previously] . . . I think that actually from the point of view of the patient . . . certainly you will often have a situation where a male patient will want to talk to a male adviser or clinician, but I think that also helps with the sort of dynamic within the group [. . .] And I think . . . paramedics see things very differently, very much a here and now [. . .] So it's a good mix of skill mix when you assessing a patient's needs on the phone.*

*Trainer2, focus group, site 5*

The organisation has a strong ethos of supporting and valuing its staff, with an emphasis on continued learning and opportunities. Staff at this organisation suggested that NHS 111 and NHS Pathways have introduced a greater range of career development opportunities, which appears to fit well with the organisational ethos of opportunities and staff development:

*The [senior manager] says, 'we are all equal here. No one is better to anyone else in terms of clinical compared to non-clinical people – we just have different skills'.*

*Observation, call centre, site 5*

*[The] telephone triage is basically the same [as NHS Direct] but we deal with the more complex call . . . it's quite nice really to be dealing with more complex calls and . . . there's been opportunities like auditing calls and even interviewing, short-listing. So there's a variety so we're not just sitting on the phones. There's opportunities . . . getting involved and [a] management role as well, doing extra things. And we now have our study sessions every week. One clinician will do a teaching session and so we keep the education system going . . . training and learning and development.*

*ClinA1, focus group, site 5*

*If someone becomes proficient in the system then we put an advert out . . . for anyone interested in coaching to encourage an informal interview, and then they'll attend a one day course here and then . . . get supported being a new coach [. . .] There's far more developmental opportunities within 111 to actually move within the service.*

*Trainer2, focus group, site 5*

The call-handling organisation has a dominant position in the provision of out-of-hours and urgent care services and has been able to capitalise on opportunities presented by the procurement and commissioning of NHS 111 services. The competitive nature of tendering for NHS 111 contracts has created tensions between partner organisations in this area, however. One of the partner organisations that had previously provided out-of-hours services (including call handling) for the area also tendered for the NHS 111 contract in this area. Although it lost the NHS 111 contract to site 5 in terms of providing call handling, it is still responsible for providing UCC services in the area. Former competitors are therefore now obliged to work together offering different parts of the service, creating a somewhat difficult working relationship:

*[The senior manager] talks about how the key relationship between [the organisation providing UCCs] and [the call centre] doesn't seem to work as it should. She says this is a real shame as they all want the best for the patient. We discuss if it is competition that's the problem. She thinks it is. [The other organisation] lost out and feels they are undermining what [we] are doing. [The senior manager] is*

*really upset about this. She says they work so hard and have few complaints from anyone else. She worries about the effects this negative information will have on people's views of the service.*

*Observation, call centre, site 5*

## Summary

There is considerable variation in the organisation and delivery of NHS 111 services, shaped by the organisational history, dominant service ethic and professional culture of the varied contracted organisations. Our comparative case study approach suggests that there are some key factors that have shaped the development of NHS 111 service delivery.

There is an inherent tension in the NHS 111 service – there is a push for rationalisation and standardisation while at the same time there is the pull of local service providers wishing to continue to provide services that will deliver quality care that is aligned with their service ethic and their views about what is needed locally. Organisations were motivated by different reasons to want to pilot NHS 111. Broadly speaking they included more entrepreneurial, business-orientated ambitions about expanding the business of the organisation as well as looking for opportunities to grow new business (sites 1 and 5). The commercial organisation (site 5) and ambulance-led providers (sites 1 and 3) were particularly driven by rationing and systemising – by pursuing the NHS 111 vision of ‘right care, right place, right time’. NHS 111, underpinned by NHS Pathways, was a means of rationing, but it also achieves the goals of developing a more integrated service, which may relieve the pressure on ambulance services (sites 1 and 3).

Sites 2 and 4 were driven by different factors. Both were well-established and respected out-of-hours organisations that stood to lose a significant part of their business – the call centre business – if they did not bid for the NHS 111 contract. Both of these patient-centred organisations were strongly motivated to protect their current out-of-hours business. Sites 2 and 4 also feared the ‘threat’ that an alternative provider might offer a poorer service to their local patient population.

The organisational history has, to some extent, shaped how each organisation has handled these tensions and affects the way in which the everyday work of NHS 111 is carried out. For example, sites with a stronger push towards rationalisation (notably sites 1 and 5) demonstrate a more ‘hard-line’ approach to making dispositions (e.g. the call advisers are trained to provide dispositions) than sites with a strong patient-centred ethos (sites 2 and 4), where there is more negotiation and an expectation that patients ‘should be seen or speak to’ a health professional.

Co-location of services and a shared history has significantly enhanced the co-ordination of work and relationships and interorganisational trust and knowledge sharing between organisations. This was particularly strong in out-of-hours organisations that have historically provided call centre activity and UCC services (sites 2 and 4) and organisations that have a history of integrated working (site 3). A lack of previous engagement or joint working with partner organisations or a lack of shared historical relationships appears to be detrimental to relationships between NHS 111 partners. We see this particularly in sites 1, 2 and 5, and in sites 2 and 5 this poor relationship has been exacerbated by the competitive tendering process.

Sites 2 and 4 in particular were both in a position of needing to tender for the NHS 111 contract to protect their current out-of-hours business and workforce. Contracts were initially awarded as ‘pilots’ so organisations were then required to retender to provide the service from 2013 onwards, introducing considerable stress, uncertainty and a huge amount of work for organisations. The competitive process has resulted in organisations being less open, protecting themselves against the potential loss of their business. The opportunity for sharing early best practice has been hampered as sites have been less willing to ‘open their doors’ to potential competitors for fear of giving away their competitive edge.



## Chapter 7 Integrating the findings from our study with the findings from the Policy Research Programme-funded evaluation of NHS 111 pilot sites

While this study was in progress another project looking at NHS 111 was being completed by a research team at the University of Sheffield.<sup>15</sup> The Sheffield study, funded by the PRP, was a mixed-methods evaluation of the first four NHS 111 pilot sites that ran from October 2010 to June 2012, overlapping slightly with our project.

Our study was carefully designed with input from the Sheffield team so that our methods and analyses would augment the Sheffield research. Both teams liaised and corresponded regularly by e-mail during the course of the research to ensure that we did not duplicate effort. We supported information sharing between the two projects by having a member of each research team on the other project's steering/advisory group and circulating interim findings.

Towards the end of our study we held an integrative research workshop in London to bring together members of both research teams to discuss our respective findings. At this stage the Sheffield study was complete and the team had submitted a final draft project report to the PRP and our project was in the closing phase of data collection and analysis. The workshop provided an opportunity for members of the Southampton and Sheffield teams to discuss how the findings of each project might be integrated.

From the Southampton team Joanne Turnbull, Ali Rowsell, Susan Halford, Catherine Pope, Jane Prichard and Jeremy Jones attended. From the Sheffield team Alicia O'Cathain, Janette Turner and Jonathan Tosh attended.

### Summary of the Sheffield study

Details of the Sheffield study are published elsewhere<sup>15</sup> but a short summary is provided here to situate the discussion in this chapter. The Sheffield study evaluated four NHS 111 pilot sites, three of which were led by NHS Direct and one by an ambulance trust. The evaluation was designed to assess processes, outcomes and costs and used a controlled before-and-after design to measure the impact of NHS 111, comparing changes over time in the four pilot sites and three control sites that did not establish NHS 111. The evaluation comprised:

- descriptive analyses of service use, referral patterns and quality standards in the first year of operation of NHS 111 in the four sites
- two postal surveys of user experiences and satisfaction
- a controlled before-and-after telephone survey of the general population and recent users of emergency and urgent care to assess satisfaction with emergency and urgent care services and awareness of NHS 111
- an expert panel review of cases
- interviews with stakeholders exploring implementation
- a cost analysis of providing NHS 111 within an emergency and urgent care system and the potential impact of wider implementation.

The Sheffield evaluation showed that NHS 111 had been successfully implemented, albeit slightly differently, in all four sites and that these services were meeting national service quality standards. Caller satisfaction with the NHS 111 service was, in the main, quite high and stakeholders were enthusiastic about the new service, but also concerned about the challenges for wider implementation. Awareness of



the service was higher in two of the sites. The NHS 111 service did not appear to have a statistically significant impact on emergency ambulance calls but a drop in NHS Direct calls and an increase in emergency ambulance incidents were detected. The expert panel concluded that the calls that it reviewed received the right clinical disposition and achieved the objective of 'right place, first time'. The cost analysis showed that there was a low likelihood of cost saving across the four pilot sites but that national implementation, assuming a reduction in NHS Direct costs achieved by disconnecting the 0845 number, could potentially save the NHS £2.5M per month.

## The workshop discussion

Rather than simply reviewing the findings of the two studies, the workshop discussion was structured around three core areas of overlapping interest, namely the impact on the wider health system of introducing NHS 111, the organisational implications of introducing NHS 111 and caller experiences of the NHS 111 service.

### *Impact on the wider health system*

#### **Ambulance service**

The Sheffield evaluation did not demonstrate any statistically significant change in number of 999 calls but did show a statistically significant increase in ambulance incidents overall. Drawing on the Southampton ethnography we noted that some NHS 111 services appeared to be responding to rising emergency ambulance service demand with call management processes designed to validate or reduce 999 dispositions. This included weekly monitoring of 999 dispositions to identify patterns that could be addressed by additional call adviser training or by transferring these cases to clinical staff before sending the call to 999. The ethnographic work suggested that call advisers and other stakeholders accepted that the CDSS was 'risk averse' but that this was a necessary feature for non-clinical call handling. Analysis of one of the Sheffield sites showed no change in the number of ambulance incidents. We discussed possible reasons for this and noted that there was no direct electronic link to ambulance dispatch (warm transfer) so call advisers had to consciously telephone the ambulance service whereas other sites had click-through access by telephone. In addition, this particular site had put considerable additional effort into populating the DoS and this may have enabled a better match between patient need and the appropriate service.

#### **General practice**

The Southampton team discussed their data which suggested that 'gaming' the system was occurring, with receptionists in some general practice surgeries asking patients who called in the afternoon to re-dial NHS 111 as they had no further appointments available. We discussed why patients were not being routed to other daytime services by general practices (e.g. walk-in centres) as this appeared to occur when patients called NHS 111 during 'in-hours' periods. In looking at the dispositions that directed patients to general practice (as a recommendation for a next-day or 3-day appointment) the Southampton team had found that some of the informal organisational call-handling practices bypassed dispositions offered by the CDSS, for example some call advisers used discretion with calls near the weekend that resulted in a non-urgent GP (within 3 days) disposition and would tend to book UCC visits on the same day.

#### **Walk-in and urgent care centres**

The Sheffield team found one site with a statistically significant reduction in walk-in centre/UCC/out-of-hours service use but noted that it had not been possible to disaggregate data about the use of different services. The Southampton team noted a perception among staff and stakeholders that 'everything is increasing' and a tendency to attribute this to the introduction of NHS 111, but we felt that this needed further investigation as there had been similar perceptions surrounding the introduction of NHS Direct.



## NHS Direct

The Southampton study did not sample sites where NHS 111 services were provided by NHS Direct. We noted that NHS Direct currently supports both health information calls as well as health advice but that the marketing of NHS 111 has focused on 'urgent care'. Nonetheless, the Southampton study presented data showing some examples of calls for non-urgent advice (e.g. asking where services were, asking about opening hours or wanting self-care advice). Many health advice calls and some information-seeking calls (e.g. identifying appropriate services for a patient with long-term but non-urgent cardiac care needs) were transferred to NHS 111 clinical staff as call advisers did not have the knowledge required to deal with these. Occasionally, answering these calls involved team work and several staff would be marshalled to help provide an answer. This raises some questions about where non-urgent callers will go once the 0845 number for NHS Direct is disconnected. There appears to be an assumption that the NHS Direct website will provide health information of this kind but we noted that people would need to have access to the internet.

## Organisational implications of NHS 111

### Implementation

All of the Sheffield and Southampton sites studied had launched the NHS 111 service. However, both studies suggested that it has taken considerable organisational effort to introduce the service. The Southampton team argued that this effort would be needed in the longer term to keep the service functioning. The introduction of the NHS 111 service in each setting required the resolution of a number of tensions and challenges and often these were unique to the history and location of the service. This included agreeing the boundaries between NHS 111 and emergency services (which might be different from those previously negotiated, say, between ambulance and out-of-hours services), resolving conflicts and creating new working relationships and ways of working for staff (e.g. establishing 'trust' between staff in different services), managing workflow in new ways (e.g. UCC appointment systems) and working around limitations in service provision (e.g. to meet an increased need for mental health services out of hours). Some NHS 111 services struggled with the pace of implementation and reported feeling that implementation of NHS 111 'happens despite everything'. Both teams noted that it has not been possible to accurately cost the resources required to launch the service in each site and felt that this was an important gap in knowledge for future service roll-out. The Southampton study noted that some sites had encountered difficulties in workforce planning because of uncertainties about local patterns of demand.

### Different organisational models

Research visits and fieldwork at each of the sites had allowed each team to build up a good understanding of the organisational models, cultures and histories at each site and this revealed intersite variation. The sites studied included a highly integrated service model in which NHS 111 call handling was co-located with out-of-hours services and on the same site as A&E services. Other NHS 111 services were not physically integrated with care providers; these might be 'stand-alone' call centres or NHS 111 services co-located with 999 ambulance call-handling services. Both teams felt that co-location with care providers could be a key differentiator of the levels of service integration achieved. Proximity and contact between staff enabled better understanding of the range of services provided, which led to smoother working relationships and the build-up of trust and communication networks, which enabled stronger integration.

The Southampton team noted that internal organisational structures and cultures evolved as the NHS 111 services developed over time, but also reflected 'parent' organisations; thus, for example, the NHS 111 services provided by ambulance trusts tended to mimic the formal organisational structures of these well-established organisations whereas the new private and third-sector providers had slightly flatter hierarchies and a different organisational ethos. The Sheffield team felt that although their study began with four different NHS 111 sites there were two contrasting organisational models: NHS Direct or the ambulance service. The three NHS Direct 111 sites were organised with NHS 111 as an additional call

centre activity in the context of a national organisation with an established history providing a nurse-led telephone service. The ambulance trust-led service was situated in a more regionally focused organisation with a history of emergency call handling and emergency care provision. The Southampton team noted differences across the sites in such things as organisational reporting and management lines through to the use (or not) of uniforms. The research teams noted that local histories and key players appeared to have an impact on how the services were organised – for example in one of the sites studied by the Southampton team a strong not-for-profit ethos in a service provided by a third-sector organisation was supported by statements made by senior management, by formal organisational structures and by pay and reward systems. It appeared that some standardisation of organisational models might occur if subsequent commissioning rounds favoured a few larger established providers.

Although the ‘front end’ of the NHS 111 service was delivered by non-clinical call advisers using the CDSS, each of the organisations also had clinical staff involved in service delivery. The Southampton study had the opportunity to examine the workforce in more detail and suggested that these clinicians tended to be paramedics or nursing staff, although some sites also had access to GPs. These staff typically worked alongside the non-clinical call advisers, creating an apparently flat hierarchy. However, these clinical staff were increasingly implicated in the extensive training, audit and monitoring functions necessary for the efficient and safe running of the NHS 111 service. As each service grew the amount of this audit work increased, as did the visibility of this distinct group of clinical staff, creating a clearly defined tier of staff in each organisation.

### *Caller experience of the NHS 111 service*

#### **Experiences of using the service**

The Sheffield study conducted two cross-sectional postal surveys of NHS 111 users at 3 and between 9 and 11 months after the start of the service in each site. The average response rate for the surveys was 41%. The survey analysis showed some demographic differences in who called the service and differences in how the calls were routed to the service (directly via the NHS 111 number or via call rerouting). One-third of respondents said that they had been given a primary care appointment and two-thirds of respondents found the advice received ‘very helpful’. The Southampton study did not directly examine caller views of the NHS 111 service but we were able to report our analysis of the call advisers’ conversations with patients. This qualitative analysis supported the Sheffield survey finding that patients were largely satisfied with their experience of the NHS 111 service. We noted that callers sometimes expressed surprise that the service was available 24 hours a day and that they were able to get appointments to see a doctor or speak directly to a clinician. Both studies did, however, note the considerable frustrations experienced by some callers at the number of questions the call advisers asked them – particularly when these did not seem relevant to the reason for the call (e.g. callers wanted a GP appointment for a prescription that had run out but the call adviser had to ask questions to rule out emergency conditions as per the CDSS script). Another issue identified by the Sheffield study expert panel review were the problems faced by patients receiving palliative care who were told to phone NHS 111 to request district nurse home visits but then had to endure a set of apparently ‘irrelevant’ questions from the CDSS.

#### **Caller expectations**

There was some evidence in both studies that caller expectations shaped satisfaction. The Sheffield survey noted some differences in the routes by which callers accessed the NHS 111 service, with those auto-routed from another service reporting lower satisfaction. The Southampton team discussed the strong differences in the call adviser perceptions of some populations, notably from a set of data from one site in which the NHS 111 service covered two geographical areas that had previously had very different arrangements for out-of-hours care. The call advisers at this site felt that callers from one area were more demanding and ‘just wanted a GP appointment’ and were less willing to go through the CDSS questions. It seemed clear

from these data and the suggestion made by the Sheffield survey about call routing that caller expectations were important and would need to be carefully managed when the service was rolled out nationally. Both teams agreed that the call advisers undertook a considerable amount of work managing caller expectations to achieve a positive outcome to the calls.

### Economic analysis

The final part of the workshop looked at the economic analysis carried out by the Sheffield team. We explored how the qualitative analysis from the Southampton study could inform the Sheffield costing analysis and how the two studies could be integrated to inform future economic analysis of NHS 111. We explored possible ways of integrating the findings using formal methods (e.g. Bayesian analysis) but rejected these on the advice of the economist members of the team with it being agreed that the data would not sustain such analyses. We focused therefore on bringing together the economic analysis with the narratives offered by the qualitative and survey work from both studies.

We revisited our discussion about the significant organisational effort and resources marshalled to introduce the NHS 111 service in each site. We acknowledged the lack of robust resource use and costing data surrounding this activity and the difficulties in accurately costing the implementation of NHS 111. One of the key findings from both studies was that the provision of NHS 111 services had implications for a wide range of resources and stakeholders in addition to the apparently immediate costs of the CDSS software and the new call-handling staff. We noted that the use of existing infrastructure and estate had been essential to the delivery of the service at each site – in terms of both call centre accommodation and telephony, computing and training facilities and human resource management capability. Although the Sheffield team had been able to estimate costs per call and undertake a cost analysis, the lack of data on measurable health benefits, problems disaggregating some activity data (e.g. walk-in centre/UCC/ out-of-hours) and lack of data on other key costs (e.g. in-hours general practice dedicated to urgent care) meant that the team had not been able to undertake a cost-benefit analysis. We noted that the increasing involvement of private sector providers and competitive contracting processes meant that commercial sensitivity might prevent full economic costing of these services in the future.

The Sheffield study costings had indicated that there was a likelihood of significant cost savings if the NHS 111 service replaced the telephone component of NHS Direct (i.e. the 0845 telephone number was disconnected) and the GP component of out-of-hours call handling. We discussed the evidence from both studies regarding the appropriateness of calls and the public understanding of the term 'urgent care'. The newness of the NHS 111 service and the current pattern of call routing – some via the NHS 111 number, some via auto-rerouting of calls from out-of-hours general practice and others via answerphone messaging – meant that not all callers understood what the service offered or that they had used NHS 111. This meant that call advisers had to deal with different expectations and needs. We noted that in the current system NHS Direct continued to pick up much of the demand for non-urgent health advice and service signposting. The Southampton study, which focused on NHS 111 services that were not provided by NHS Direct, noted the incidence of calls for non-urgent advice and support. We felt that there was an assumption that much of this non-urgent demand would increasingly be met by alternative services, such as NHS Direct online. Our analysis of call interactions and understanding of service user expectations suggested that this might be more problematic, that there might continue to be high levels of demand for telephone-based non-urgent advice services. Both research teams felt that this might have implications for service costs in the longer term.

Both study teams agreed that a more detailed economic analysis of the NHS 111 service would be helpful to inform future policy and service development. This would require more detailed costs for inputs, activity and outcomes. Given our findings about implementation processes and the effort required to keep the service functioning, future analyses would need to include initiation, staff and non-staff resources, training and audit and long-term running costs.

## Conclusions from the workshop

We concluded that the two studies were indeed complementary. This section of the report has highlighted some important issues to be considered for future commissioning and policy as well as articulating some remaining gaps in our knowledge about this new service. Both studies revealed different organisational models for service delivery and highlighted the considerable organisational effort required to introduce a service and again this may provide valuable lessons for the future roll-out of the NHS 111 service. The Sheffield study provided survey evidence of high levels of satisfaction with the new service but both studies urged caution over the need to understand and manage user expectations and future demands. Finally, the workshop discussion of the economic analysis highlighted the need for further, more detailed work on the costs and benefits of this new service model.

## Chapter 8 Discussion and conclusions

### Answering the questions in our proposal

In our proposal we highlighted that the NHS 111 service would fundamentally change the way in which urgent care is organised and delivered, most notably in the use of digital technologies and the greater use of non-clinical staff to undertake clinical assessment. The introduction of this new service, deploying a technology that we had previously studied, provided a timely opportunity to empirically investigate four core features of health-care innovation and change around which our four research questions were framed: the way in which work and workforce is organised for this new service and how the technology and organisational context shape the way in which services are delivered. We proposed to undertake a detailed comparative case analysis of three NHS 111 services (in fact we have undertaken this in five sites) to understand the impact of these inter-related aspects on the organisation and delivery of urgent care services and inform workforce planning.

In this chapter we draw together our conclusions for each research question before discussing the implications of our findings and how this work has built on our previous NIHR Service Delivery and Organisation programme project<sup>18</sup> and complements the evaluation of NHS 111 undertaken by the Sheffield team.<sup>15</sup> Finally, we set out our research recommendations and consider the strengths and limitations of the study.

### What is the work of NHS 111?

We examined the everyday work tasks and activities involved in delivering the services and integrating care provision. NHS 111, underpinned by NHS Pathways, has facilitated the management of urgent care calls but it is notable that the NHS 111 service receives calls about a broad range of physical and mental health problems as well as social issues. Some staff suggest that implementation of the NHS 111 service may have increased the number of 'non-urgent calls' (compared with out-of-hours services), including those from people seeking medical advice and reassurance. In addition, our findings suggest that some callers may access urgent care via NHS 111 rather than by contacting their own GP when they believe that it can help them to access care more quickly and more conveniently. GPs may also direct callers to NHS 111 when the GP surgery is busy or there are no more appointments available that day.

Building on our previous study<sup>18,27</sup> we have shown that NHS 111 call-handling work is complex and intensive, involving high levels of communication and 'emotion' work. The ways in which the work 'gets done' play out differently at each site but all call advisers demonstrate a considerable level of skill in negotiation, communication and translation to mediate the assessment process that enables the CDSS to work most effectively. Call advisers engage in a range of everyday work activities that extend beyond being simple users of a CDSS to assess calls.

The everyday work of clinical advisers varied across sites. At all sites (except site 2 where clinical advisers were based at a separate organisation) these staff provided support and reassurance. In particular, they played an important role in managing and sanctioning dispositions, notably emergency ambulance dispositions. Variations in how support for call advisers was delivered appeared to be influenced by levels of trust at an organisational level, so that some organisations (notably sites 1, 2 and 5) appeared to engender a greater degree of autonomy in its call advisers through their approach to training and ongoing support.

Clinicians at UCCs provide further assessment and a consultation, either on the telephone or face to face (at an UCC or at home) and their work is shaped by call advisers, clinical advisers and call supervisors working at the call centre, who determine how many patients are seen, who is seen and how quickly patients are seen by clinicians. Upward referrals are also made to UCC clinicians for decision-making.

Clinicians can assess and manage risk in ways that non-clinicians using a sensitive CDSS cannot. Although we identified that some UCC clinicians had concerns about non-clinical workers assessing calls, these typically (although not entirely) related to issues of specificity rather than sensitivity.

### **Who is the NHS 111 workforce?**

We examined the experience and skill sets of this new workforce, identifying education and training needs of workers and how this workforce might be developed and maintained. We also examined role differentiation, the division of labour (e.g. how tasks are divided formally and informally between staff), professional boundaries and relationships across NHS 111. Across all sites the piloting of NHS 111 involved providers expanding their workforce, employing or reorganising to fill additional roles. At all sites there were opportunities for call advisers to be promoted to a new role of call supervisor, who provided support for day-to-day call-handling activities. Clinical advisers primarily brought their clinical skills to NHS 111 work and were important in not only responding to dispositions but also managing the workload (e.g. sanctioning or 'managing down' dispositions safely). The role also required a range of additional management skills for supporting, training and auditing call adviser activities.

Across NHS 111 there is a blurring of boundaries between different clinical professions and non-clinical staff groups. Call advisers and clinical advisers triage calls, make decisions and assess clinical risk, supported by NHS Pathways, thereby stepping into the domain of medical doctors who have traditionally undertaken triage in out-of-hours services. There is a history of nurse telephone triage within the NHS<sup>38,39</sup> but only more recently has technology enabled non-clinical staff to perform complex health-care work. Almost inevitably this is a source of tension amongst some UCC clinicians, with frustrations about perceived 'inappropriate' dispositions and tensions around professional boundaries. Clinicians held clear beliefs that input from clinical staff is essential not only for supporting call advisers but also to enable clinical staff to take clinical responsibility for more complex calls. Within UCCs, when ECPs or NPs worked alongside GPs, typically these staff undertook similar roles, dealing with face-to-face appointments and home visits.

### **What is the NHS 111 technology?**

We examined the core technologies implicated in the delivery of the NHS 111 service. These included the CDSS used to assess and manage calls and the DoS used to locate appropriate services for onward referral when indicated. The CDSS was the focus of our previous research project<sup>18</sup> but we have provided additional detail here of how it is used in the NHS 111 context. The DoS is key to the delivery of NHS 111 as it provides the call advisers with information about services, including location, opening hours and remit. However, the delivery of the services required a set of interlinked technologies, including case record and case management systems, booking systems and a range of what might be considered peripheral ICTs (call activity monitoring and display, internet features including web browsers and e-mail and mapping systems). The different settings do not use the same case record/management systems and we noted that Adastra, Cleric and Valentia are currently used. As these systems are used elsewhere within the organisations providing the NHS 111 service it seems unlikely that it will be possible to standardise this technology, which means that the interface between case record/management systems and the CDSS will vary slightly across different sites.

Trust in NHS Pathways amongst call-handler staff was relatively high and the call advisers in particular are positive about this technology. There is some appreciation that the system is risk averse and awareness of some areas in which the pathways are less effective or useful (e.g. multiple symptoms). There is some site variation in terms of trust but this may reflect the poorer response from UCC and external stakeholders; however, GPs and other external stakeholders are less positive about the CDSS than those who use it every day. Staff at call centres understood why NHS Pathways reached particular dispositions – primarily because the system has to be, above all things, safe. However, UCC staff were sometimes confused as to why particular patients were referred to them. Lack of trust and negative views about NHS 111 were likely to be influenced by perceptions of the 'appropriateness' of NHS 111 assessments and outcomes.



Providers have established contingency plans for dealing with major technological faults, but we also noted that the staff in the call centres work hard to make the technology work, often developing workarounds that enable this. The survey suggests that they find the system largely reliable, although some problems with the DoS were noted, especially the need to keep this up to date. The key area of integration necessary to deliver NHS 111 was between the CDSS and the DoS, and this appeared to be an area in which there remained some problems, such as dissatisfaction with case records and information about services. Again, it was notable that staff worked hard to overcome the barriers to integration and that non-clinical staff tended to have a more positive view of the level of integration between technologies overall.

### **What is the organisational context of NHS 111?**

There is considerable variation in the organisation and delivery of NHS 111 shaped by the organisational history, dominant service ethic and professional culture of the varied contracted organisations. Call-handling organisations were motivated by different reasons for bidding for the NHS 111 contract, including entrepreneurial drivers (such as expanding the size of the business or growing new business) as well as protective drivers [to defend against threats to existing (out-of-hours) business and the desire to keep call handling 'in-house'].

In all sites the spatial location of the work facilitated communication and the sharing of knowledge, with co-location facilitating supportive relationships and knowledge sharing. The ability to work in and manage teams is essential for the successful implementation of NHS 111. Relationships between some UCCs and call centres were poor. In addition to concerns about non-clinical staff undertaking clinical assessment, proximity (co-location) and history appear to have influenced the working relationships between call centres and UCCs. In sites 1, 3 and 5, call centres and UCCs were separate services and the relationship between these was a 'faceless' one; communication between the two was typically limited to NHS Pathways information transmitted electronically, supplemented with some telephone communication (discussed further in *Implications for integrating health services*).

Inherent tensions exist within the NHS 111 service. On the one hand there is a push towards rationalisation and standardisation but on the other hand local service providers are strongly pulled towards designing services that are aligned with their service ethic and with their views about what is needed locally. Broadly, the commercial organisation (site 5) and ambulance service providers (sites 1 and 3) were more driven by rationing and systemising – by pursuing the NHS 111 vision of 'right care, right place, right time' – whereas out-of-hours services were heavily driven by an ethos of providing a service that is more in line with what they provided as out-of-hours organisations. Co-location of services and a shared history have significantly enhanced the co-ordination of work and relationships and interorganisational trust and knowledge sharing between organisations but the competitive nature of NHS 111 contracts has resulted in organisations being less open and protecting themselves against the potential loss of their business. The opportunity for sharing early best practice has been hampered as sites have been less willing to 'open their doors' to potential competitors for fear of giving away their competitive edge.

## **Implications of our findings for workforce planning and organisation**

### **Implications for the roles, training and education of call advisers**

Building on our earlier findings<sup>27</sup> we suggest that NHS 111 call handling is a complex task combining high levels of communication, cognitive skills and emotion work. The extent to which call handling is high- or low-skilled work is debated in the wider call centre literature.<sup>40</sup> It is often presented as low skilled (characterised by repetition and high levels of monitoring)<sup>41,42</sup> although higher-level skills (e.g. emotion and articulation work) are also recognised.<sup>43</sup> Training and audit activities reinforce the idea that flexibility and experiential expertise are not required when using the CDSS, but we have shown that accommodating these features plays an important role in enabling call advisers to make a disposition. Our work suggests that call advisers are not passive users of computer software. They develop and draw on experiential

knowledge and lay clinical knowledge (e.g. in over-riding call dispositions and translating information provided by the caller).<sup>26</sup> However, staff recognised the fine line between 'probing using the supporting information' and 'following the system.' We suggest that the work carried out by NHS 111 call advisers has more in common with clinical health-care work than with other generic call centre work that it superficially resembles. Working in health-care settings is attractive to call advisers; they are highly motivated and often very committed to delivering high-quality services. At all sites there were opportunities for progression into training, auditing or supervisory roles. We identified some requests from call centre staff for a 'professional' qualification for NHS 111 call advisers, one that recognises and formalises this distinct role and level of training. Offering opportunities for career development and recognising the range of skills that call advisers demonstrate are a vital part of recruiting and retaining skilled call advisers and are essential to technologies such as the CDSS delivering on their promise of managing demand whilst providing quality health services.

Ongoing formal and informal coaching was provided at all of our sites through buddying systems, support from call supervisors and clinical staff and feedback from the audit process. However, there was considerable variation across sites in how these activities were performed and by whom. There was also considerable variation in the levels of confidence that call advisers demonstrated in performing their role. This lack of standardisation of training could have implications for the skills acquired by call advisers and the degree of confidence that they have to complete calls effectively. Greater consideration of how training is delivered may influence the confidence and/or autonomy of these workers.

### **Implications for NHS 111 as a standardised service**

NHS 111 is predicated on the use of a CDSS built on abstracted clinical evidence that is designed to ensure consistency and safety by standardising, controlling and monitoring the clinical knowledge in play for both call advisers and clinical advisers. In practice, the everyday work of using NHS Pathways to deliver NHS 111 is somewhat more 'messy' and our findings suggest that standardisation across NHS 111 may be difficult for a number of reasons.

NHS 111 call centre workers manage a vast range of contingencies in using the CDSS, using significant human input and clinical expertise. Clinical and non-clinical staff merge their expertise and experiential knowledge (albeit in different ways) to deliver an individualised, rather than a standardised service. Call advisers use considerable skill to identify the exact nature of a patient's symptoms ('probing' to sift out relevant information to be able to select and assess a single symptom), adapt to a caller's levels of knowledge about symptoms (e.g. translation work, rephrasing), assess the caller's circumstances, drawing on their knowledge and expertise, and make tacit judgements (e.g. whether the caller is correctly depicting the symptoms, whether the disposition seems appropriate). In most sites call advisers are also heavily supported by a clinical workforce and draw on the professional expertise of a range of clinical colleagues (nurse advisers, paramedics and primary care doctors). Clinical advisers play a key role in delivering NHS 111 by supporting callers, providing an additional assessment of complex calls and sometimes managing dispositions by using their experience and expertise. This merging of lay expertise (call advisers) and professional expertise (clinical advisers) with the CDSS expertise is reflected in the wider literature. For example, our findings are similar to those of Greatbatch *et al.*<sup>44</sup> who found that nurses used a CDSS in a range of ways, incorporating and valuing their own expertise, to 'deliver an individualised service' (p. 802). Berg<sup>45</sup> suggests that it is often necessary to adapt the formal rules (algorithms) of CDSS to accommodate the complex, multifaceted issues that arise in clinical decision-making, reflected in the literature about nurses using CDSS.<sup>44,46</sup>

Flexible, non-standardised use of the system is a means of mediating the (real or perceived) 'oversensitivity' of the CDSS (or 'risk averseness' as sometimes described by staff). Previous research suggests that the CDSS is often oversensitive (it does not miss sick patients and therefore it is safe) but that it tends to 'over-triage' (it identifies 'too many' false positives because it is not specific enough).<sup>47,48</sup> Such studies acknowledge that it is difficult to devise a CDSS that has both high sensitivity and high specificity, and in a CDSS that has been designed for use by non-clinicians it is necessary – and somewhat inevitable – that NHS Pathways has high



sensitivity. It is possible that NHS Pathways<sup>13,15</sup> may 'over-triage', particularly to ambulance services; however, more work is required to clearly understand this. What is clear from our study is that call advisers and clinicians use their expertise and experience to mediate (real or perceived) 'oversensitivity'.

All call centres faced similar issues in working with the CDSS but different sites approached making dispositions in different ways. In some sites, for example, all emergency dispositions were sanctioned by a clinical adviser before an ambulance was dispatched. There were variations in the extent to which call advisers requested support from a clinical adviser or referred 'difficult' or 'complex' cases to a clinical adviser. It is likely that this variation in how the CDSS is managed is influenced by the organisational history and culture, practices, professional culture and dominant service ethic of the varied contracted organisations. NHS 111 tries to impose an abstracted standardised system on the urgent and emergency health-care system but our findings suggest that 'place' affects the way in which this standardised system becomes embedded in practice.

This difficulty in achieving standardisation raises important issues for the development and use of expert systems, not only in NHS 111 but also in the organisation of health care more widely. A lack of standardisation could have implications for safety and efficiency but evaluating this lies beyond the remit of our study. There is a potential concern that flexibility in call advisers using the CDSS may lead to overconfidence and the exercising of inappropriate levels of discretion. However, the high levels of clinical support and monitoring that we have observed (e.g. audit, ongoing training) helps to temper this. This lack of standardisation may also help explain why there are differences in disposition rates between NHS 111 sites.<sup>15,27</sup>

### **Implications for workforce reconfiguration**

Underpinning a new telephone service with non-clinical workers offers significant opportunities for workforce reconfiguration. However, our findings suggest that there is not a simple substitution of labour (i.e. non-clinical staff replacing clinical staff). The introduction of NHS 111 has resulted in workforce expansion in each site – of both clinical and non-clinical staff. It should be noted that this is likely to be both because of changes to work practices (e.g. the introduction of NHS Pathways) and because NHS 111 has generated more calls on a wider range of health issues (compared with previous calls to out-of-hours providers) and the new service may be attracting calls that might have previously gone to NHS Direct.

What is clear from this study is that there is a significant organisational structure in place that is necessary to support and 'keep in place' both the CDSS itself and the non-clinical workers who use the CDSS. This inevitably has implications for the organisation, delivery and financing of NHS 111. Although cost saving is not an explicit aim of NHS 111,<sup>12,49</sup> it should not be assumed that employing a 'cheaper' non-clinical workforce to assess calls will reduce urgent care costs. The apparent advantage of a non-clinical workforce has to be set against the resources and structures needed to support these types of staff. This includes the need for auditing, training and ongoing clinical supervision and support, as well as the necessity to refer many calls upwards to nurses and doctors. Considerable additional work is required to support these workers and efficiencies in service provision may not always be achieved. This should be borne in mind when introducing NHS 111.

### **Implications for integrating health services**

NHS 111 seeks to integrate a range of urgent care services in the context of an increasingly complex landscape of health services and significant increases in demand for urgent and non-urgent services. Curry and Ham<sup>50</sup> distinguished between 'real' integration, in which organisations merge their services, and virtual integration, in which organisations work together through networks and alliances. NHS 111 is primarily founded on virtual integration so that a network of different organisations provides different aspects of the service (e.g. call centre, UCC). This network is primarily enabled through technological integration (e.g. communication, information sharing). We have seen that technological integration is key to delivering NHS 111, most notably in NHS Pathways being able to assess the 'right time and right place' for the patient and in the DoS containing accurate information about the most appropriate service

available locally. Technological integration has been achieved in NHS 111, albeit with staff effort in developing workarounds to 'make the technology work'.

However, successful integration requires understanding and trusting relationships between different providers. Our study revealed that relationships between different providers in the NHS 111 network at some sites were very poor and that mistrust (of technology and of partner organisations) was high. Ham *et al.*<sup>51</sup> suggest that integrated care is more likely to succeed if there is good team working (so that barriers are broken down between clinicians); responsibility for defined populations that enables relationships to develop over time; and partnerships between health professionals and managers in leading improvement. Our study suggested that organisations sometimes felt that service change was imposed on them with little consultation. Even when the call centre and UCC had worked in partnership for several years (site 1), hostility and mistrust persisted. We identified that much of the communication between different NHS 111 providers was electronic, with little personal contact between providers at some sites. We suggest that technological integration alone is not enough to sustain an integrated service. Relationships were more harmonious in sites that were co-located and/or that had a history of working together. Time and effort are crucial in promoting shared communication and a more harmonious relationship between partner organisations.

Wider health service reforms also have implications for greater integration in urgent care. Opening up NHS 111 contracts to any willing provider has meant that organisations that have had no previous working relationships have been required to form partnerships to provide NHS 111. Additionally, competition may exacerbate difficulties so that integration across organisational boundaries is difficult.<sup>52</sup> Our study revealed that in some instances organisations that had previously competed against each other for the NHS 111 contract (e.g. at site 5) were now required to work alongside each other. In another case (site 2), organisations that were competing against each other for future NHS 111 contracts were required to work in partnership. Sites were reluctant to share 'best practice' with other organisations for fear of losing their competitive advantage, and this could produce fragmentation rather than integration.

Finally, the policy around NHS 111 has highlighted the need to integrate urgent and emergency care services. However, the wider system, most notably general practice, needs to be more securely aligned to this process. Our study suggested that there was a sense from some call centres that NHS 111 was diverting patients with primary care needs into urgent care. Some staff suggested that NHS 111 had the potential to be a 'victim of its own success', providing a convenient, highly accessible alternative service to general practice. The implications of these findings are that NHS 111 could expand beyond its urgent care remit, demanding considerable resources for health complaints that might be more appropriately met by other services. Thus, to be a fully integrated service, there is a need to consider how urgent care and NHS 111 might best integrate with routine general practice.

Historically, local services have developed in an ad hoc way and this has inevitably made integration problematic. There is also some tension between policies intended to promote integration and those designed to increase patient choice.<sup>53</sup> The NHS 111 service seeks to simplify access and overcome the fragmentation of urgent and emergency care services. The 'success' of NHS 111 is thus dependent on an effective and cohesive network of urgent care, emergency care and general practice services.

## Research recommendations

The conclusions reached in this study raise questions for future research. First, our analysis suggests that NHS 111 is not a standardised service across the UK. Organisational history and culture and the way in which the workforce uses the CDSS mean that the deployment of this technology plays out in different ways in different sites. For example, we have noted that there is variation in how clinical advisers advise on, or sanction, ambulance dispositions. We have argued that this interpretive flexibility has been important to the successful roll-out of services. What is not clear is whether this variation matters.

The effect of this variation on patient outcomes is unknown and warrants further research. Taking the example of ambulance dispositions we know from the Sheffield evaluation<sup>15</sup> that there has been an increase in ambulance incidents. A detailed assessment of ambulance dispositions is needed as it is unclear to what extent the technology or the call centre workforce is making decisions. UCC staff reported that the implementation of NHS 111 had resulted in an increase in their face-to-face workload (also reflected by call centre managers at some sites) although findings from the Sheffield evaluation did not seem to reflect this. The effects of variations in the way that NHS 111 is provided on its longer-term impact on urgent and emergency services warrants further investigation.

We have identified that there is a complex infrastructure that supports NHS Pathways and its use by non-clinical workers. As highlighted in *Chapter 7* there is a lack of robust resource use and costing data surrounding NHS 111 and there are difficulties in accurately costing its implementation. A more detailed economic analysis of NHS 111 is needed to inform future policy and service development and this must include analyses of detailed costs for inputs, activity and outcomes. However, this relies on there being robust data available. There are also commercial sensitivities around financial data from NHS 111 organisations.

We have suggested that lack of integration of NHS 111 services with routine general practice warrants further investigation. Beyond this, a whole-systems approach to considering integration across a wider network of partners is key to understanding the complex relationships between demand, access and the provision of health care.

## Strengths and limitations

This follow-on study has built on the extensive work of our previous project,<sup>18</sup> which examined a single CDSS used in different emergency and urgent health-care service settings. Through five detailed comparative case studies drawing on ethnographic and survey methods, we have explored the inter-related aspects of work, workforce, technology and organisation of NHS 111, to inform the organisation and delivery of modern health services.

The study was predominantly qualitative with a significant ethnographic component and a smaller survey component. This level of detail across a range of case studies is one of its strengths. We chose five case studies to capture some of the diversity in organisational models and professional cultures and to examine a wide range of different NHS 111 services. One of the limitations is that we were not able to include a NHS Direct model of NHS 111 provision and during the course of our research NHS Direct became a significant provider of NHS 111. The Sheffield evaluation<sup>15</sup> included three NHS Direct-led pilot sites, which allows some insights into possible differences and similarities but also makes the synthesis of findings between the two studies more difficult. We studied organisations at different points in their NHS 111 trajectory (some were more experienced in using NHS Pathways and/or had piloted NHS 111 earlier than others). The length of experience and stage of implementation will invariably affect the way in which the everyday work of NHS 111 is undertaken (e.g. how dispositions are reached). However, studying organisations at different stages of NHS 111 has also illuminated the different challenges faced by sites at different points along the trajectory.

The timescale of the project (15 months) meant that it was necessary to limit our investigation to call centre and UCC providers. There is, of course, a wider network of health services involved in the provision of urgent care that we were not able to explore in detail. We aimed to include a wide range of stakeholders in the focus groups but securing agreement to participate from stakeholders proved difficult. Additionally, inclusion of stakeholders required multiple research and development (R&D) applications across a large number of trusts, which was difficult to achieve within a 15-month project.

The survey work was limited by both the potential number of respondents available in the five sites and by the moderate response rates we received at some sites (and from UCC organisations). Because of the constraints imposed by ethics and governance requirements, and the limited time available for the project, we do not have information about the non-responders and possible bias.

### What does this study add?

This study has focused on the work, workforce, technology and organisation required to deliver the NHS 111 service, building on earlier work (a study of a CDSS in different urgent and emergency care settings<sup>18</sup>) and complementing work undertaken by Sheffield university (an evaluation of the activity of NHS 111 and its impact on other urgent and emergency care services, costs and patient satisfaction<sup>15</sup>). A summary of what our study of NHS 111 adds to earlier work is summarised in *Table 19*. We have revealed that, although call advisers are extremely skilled in assessing callers using a CDSS, the work requires significant support and monitoring. Some poor working relationships were observed between UCCs and call centre organisations, with UCC staff in particular having low levels of trust in NHS Pathways and in NHS 111. Although there was evidence of technological integration, this alone is not enough to sustain an integrated service. Organisational history, the dominant service ethic and the professional culture of contracted organisations all shape the way in which services are organised and delivered.

TABLE 19 What does this study add?

Study	What is already known?
Southampton study of a CDSS in different settings (2008–10) <sup>18</sup>	The CDSS changes call-handling work and creates a new worker identity (health-care call handler). Call-handling work is skilled. These workers are not simple 'users of a system'. Call handlers also use individual experiential knowledge, embodied expertise and team sharing of knowledge. The work of bringing the CDSS into use and maintaining its everyday use required significant effort, buy-in and ongoing appraisal and adjustment. Continued effort is required to keep the CDSS in everyday use. Although a single technology (CDSS) can be made to work in different settings, this takes more effort than simply slotting a technology into place
Sheffield evaluation of NHS 111 (2010–12) <sup>15</sup>	Some integration between services was achieved (particularly technological, e.g. NHS 111 call advisers could dispatch an ambulance without further triage). One year after launch, the pilots did not deliver the expected benefits of improving satisfaction with urgent care or improving efficiency by directing patients to urgent rather than emergency care services. There was evidence of a reduction in calls to NHS Direct but an increase in emergency ambulance incidents. A 'simplistic analysis' of the national implementation of NHS 111, with the service replacing the NHS Direct 0845 service and handling all GP out-of-hours calls, showed that NHS 111 may result in cost savings to the NHS. However, this is based on considerable assumptions and limited cost data. There was no clear evidence of the superiority of one type of model
	What does this study add?
Southampton study of NHS 111 (2011–12)	<p><i>Work</i></p> <p>Clinical and non-clinical staff work together closely to mediate the CDSS in clinical assessment in most sites. The work of UCC clinicians is shaped by call advisers and clinical advisers</p> <p><i>Workforce</i></p> <p>Significant organisational structure is required to support non-clinical staff using NHS Pathways (clinical support and monitoring, auditing). Non-clinical workers are not simply substituted for clinical workers</p> <p><i>Technology</i></p> <p>There was a low level of trust in NHS 111 and NHS Pathways amongst UCC staff. This contributed to poor working relationships between some NHS 111 partner organisations. There was evidence of technological integration, although staff sometimes developed workarounds to 'make the technology work'</p> <p><i>Organisational context and implications</i></p> <p>There is considerable variation in the organisation and delivery of NHS 111 across sites. This is shaped by organisational history, the dominant service ethic and the professional culture of contracted organisations. Integration of NHS 111 organisations is primarily 'virtual' and it is enabled primarily by technological links. Co-location and a history of working together enhanced relationships between organisational partners. There is a need to consider integration with a wider network of health care, including general practice</p>



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## Contributions of authors

**Joanne Turnbull** (Senior Research Fellow) led the research and the preparation of the report and was involved in the conceptualisation and design of the study, data collection and analysis and data interpretation.

**Catherine Pope** (Professor of Medical Sociology) was centrally involved in the conception and design of the study and the analysis and interpretation of the data. She was also involved in the drafting or revising of the report and has approved the final version to be published.

**Alison Rowsell** (Research Fellow) was involved in the collection, analysis and interpretation of the ethnographic data and in the drafting and revising of the report.

**Jane Prichard** (Senior Lecturer) was centrally involved in the design of the study and particularly the survey. She was also involved in the analysis of both the ethnographic data and the survey data and drafted sections of and commented on the final report.

**Susan Halford** (Professor of Sociology) was centrally involved in the conception and design of the study and the analysis and interpretation of the data. She also drafted sections of and commented on the final report.

**Jeremy Jones** (Principal Research Fellow) provided health economics support and particularly contributed to the joint workshop held with the University of Sheffield.

**Carl May** (Professor of Healthcare Innovation) assisted with the design of the study and commented on drafts of the report.

**Valerie Lattimer** (Professor of Health Services Research) contributed to the conception and design of the study and approved the final version of the report.





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# Appendix 1 Study protocol

## SDO PROTOCOL – PROJECT REF: 10/1008/10

**Version:** v1

**Date:** 13/11/2011

### **The work, workforce, technology and organisational implications of the ‘111’ single point of access telephone number for urgent (non-emergency) care**

Chief investigator Dr Joanne Turnbull

Sponsor University of Southampton

Funder NIHR SDO programme

NIHR Portfolio number 10885

ISRCTN registration number (if applicable) Nota applicable

## 1. Aims/Objectives

The study is designed to examine the work required to deliver the 111 urgent care service, the types of workforce and skill mix required, the interlinked technologies that will be brought into use, and the wider organisational implications of the introduction of this new service. This represents a large scale and fundamental change to the delivery of urgent care. The research questions will be addressed by using a comparative mixed methods case study approach to understand the implications of the following interrelated aspects of the new service to inform the organisation and delivery of modern health services.

### RESEARCH QUESTIONS

1. WHAT IS THE WORK OF 111? Describing the everyday work tasks and activities to understand the work involved in delivering the services and the integration of multiple providers implicated in 111; exploring information sharing and knowledge across the full range of services integrated by 111 to examine how trust and knowledge transfer varies;
2. WHAT IS THE 111 WORKFORCE? Looking in detail at the workers to examine the experience and skill sets of this new workforce, identifying education and training needs and how this workforce might be developed and maintained, describing role differentiation and division of labour (e.g. how tasks are divided formally and informally between staff);
3. WHAT IS THE TECHNOLOGY FOR 111? Exploring the technologies underpinning the service to understand the complex socio-technical interaction required to bring them into use, looking at configuration, anticipated and actual use of these technologies (both computer decision support systems and wider implicated information and communication technologies).
4. WHAT IS THE ORGANISATIONAL CONTEXT OF 111? To situate questions 1–3 we will examine the organisational effort and environment, to compare and describe structures, practices and service integration within the wider political, sectoral and organisational settings (within 111 sites and the wider network of providers).

## 2. Background

The English NHS provides a wide range of services including GP out-of-hours services, minor injuries units, NHS Walk in centres and NHS Direct. The Next Stage Review (Department of Health 2008) proposed the development of a 3 digit telephone number (111) to provide a single point of access to urgent care services to reduce public confusion about where to seek help, to coordinate and integrate services and improve access. The need to integrate urgent care services has long been recognised (Department of Health 2000; 2008). In 2009 the Department of Health (DH) announced a 1 year pilot of a 111 service as a precursor to a national single point of access service which would provide a central hub to integrate and co-ordinate care. The White paper 'Equity and excellence: Liberating the NHS', in 2010, suggested a continued commitment to developing an integrated 24/7 urgent care service incorporating GP out-of-hours services across England. The potential roll out of 111 services nationally would represent a significant change to service provision that requires long term commitment and substantial financial investment at a time when there is pressure on public funding. The DH commissioned a Policy Research Programme (PRP) funded evaluation of four pilot 111 pilots (University of Sheffield, 01/03/2010–30/11/2011) to examine activity (implementation, service use, call and referral patterns and impact on local health economy) and patients' perspectives (satisfaction, experience and demand). Our project is deliberately designed to complement this work by answering key questions about the work and workforce, and the technological and organisational context underpinning the new 111 service.

The use of new technologies like Computer Decision Support Systems (CDSS) to support new services is consistent with the NHS mission to use appropriate technology to benefit patient care and improve service delivery, but the history of the implementation of new technologies in health care demonstrates that the deployment is not always successful. Previous research shows the importance of attending not only to technological feasibility but also to the complex, dynamic processes through which technologies come into use or, more often, fail to do so (Berg 2001; May *et al.* 2005; Heeks 2006; Haux 2006). By focussing on work, workforce, technologies and organisation our study will capture these important processes.

The CDSS NHS Pathways has been identified as an underpinning technology to support the 111 service. This CDSS was the focus of our previous NIHR SDO study (08/1819/217, completed August 2010) and has shed light on the 'work' and effort required to bring a CDSS into successful use in a similar service setting. We have demonstrated the complex relationship of expertise and experience required for using CDSS on a day to day basis. This project aims to examine the work required to deliver 111 nationally, the different types of workforce implicated (clinical and non-clinical), the deployment of computer technologies to support this service and the particular organisational settings and configurations surrounding it.

## 3. Need

**HEALTH NEED:** By informing the evaluation of the new service and filling the research gaps by explaining the work, workforce, organisation and technology of 111 we will enable a more holistic understanding of this new way of delivering and accessing urgent care and see how it contributes to health care. This project will inform the work, organisation and delivery of urgent care services to the whole population, and will also speak to the wider issues surrounding the implementation and use of technologies like CDSS to meet health needs.

**SUSTAINED INTEREST AND INTENT:** The roll out of 111 services nationally represents a significant change to service provision that requires long term commitment and substantial financial investment at a time when there is pressure on public funding. The use of CDSS to support new services is consistent with the NHS mission to use appropriate technology to benefit patient care and improve service delivery. However the history of the implementation of new technologies in health care demonstrates that the deployment is not always successful. It is therefore imperative that such technologies are thoroughly understood.



GENERATING NEW KNOWLEDGE: We do not know enough about the work and organisation of this kind of service at national scale nor do we fully understand how new workforce and new technologies are brought into use and sustained. Our current project has shed light on the 'work' and effort required to bring a CDSS into successful use in a similar service setting, showing the potential for CDSS to intensify the work of call-handling, and demonstrating the complex relationship of expertise and experience required for using CDSS on a day to day basis. No research has been commissioned to examine the work required to deliver 111, the different types of workforce implicated in this service, the particular organisational settings and configurations surrounding it or the deployment of computer technologies to support this new service. It is essential to fill these knowledge gaps to ensure effective and efficient roll out of this particular service, and to inform wider debates about service development and technologies in use.

## 4. Methods

### a. Setting

Four initial pilot sites were commissioned by the Department of Health and the 111 service was launched in the pilot sites in 2010. In addition, several 'second wave' sites are due to 'go live' later in 2011. Five sites will be chosen from on the basis of including a range of different organisational models, service providers and geographical areas.

### b. Design and data collection

We will use both quantitative and qualitative methods that include: 1) Rapid ethnographic observation and 2) Focus groups. 3) A survey of staff. 4) Integrative multidisciplinary workshop.

### Ethnographic case study

Rapid ethnographic (observational and informal interview) case studies will provide a detailed description of the work, workforce, organisational context and the technologies used and will address all four research questions. Our previous research will inform this part of the study and we will use a similar approach to undertaking observation in this study. An orientation visit by two or more research team members will be undertaken at the outset of the study to outline the project and talk with key management personnel, and to make initial contact with local service managers in order to negotiate access to the study sites and the staff. Observation of call handling and the wider integration of services will be undertaken (e.g. call centres, urgent care centres) to look at interactions between staff, technologies in use, and the settings, including networks and relationships, routines, everyday processes, and workload and content.

Observation at each site will be designed to capture activity at different times of day/days of the week, including day shifts, evenings, nights and weekends, conducted by the research fellow and the named investigators. The total number of observation hours at each site will vary depending on the complexity of local organisation and work practices. A maximum of two researchers will undertake observation at any one time but typically only one researcher will be present.

The observation will consist of two main components. Firstly, the researchers will closely observe what staff do in their everyday work, and how they interact with each other and the technology. The researcher, with permission, will typically focus on one member of staff (sometimes this is called shadowing) or will watch a team (e.g. discussing a problem with the software) working. The researcher may discuss their work informally or join in conversation. In our previous study, typically the researcher sat alongside 3–4 different staff (a period of two hours per staff member) on a given shift to observe what they do – and during quieter shifts engaged the call-handler about their work, if it was appropriate to do so (e.g. if the call handler was not busy; if the call-handler wanted to talk). The research team are mindful that on busy shifts there is not always the opportunity to engage staff in conversation. Care will be taken to ensure that the researcher does not disrupt the productivity and work patterns of staff in any way. Secondly, because there is typically some opportunity to talk informally with staff at quieter periods, these informal conversations will augment and help to understand what is being observed. The purpose of these

conversations are i) to enable the researcher to check with, and clarify with staff that they have accurately understood/interpreted what they have observed ii) to understand the nature of the everyday 111 work – this will be particularly focused on their use of NHS Pathways.

Observation will be performed without audio or video recording. Detailed notes will be taken during the observation period and transcribed soon afterwards. Fieldnotes will describe the everyday work of the staff involved in delivering 111, as well as opinions about 111, and any other relevant background information. Notes will for the most part, be taken overtly in the setting, forming an outline from which more detailed notes will be written up later.

### **Focus groups**

Up to 8 focus groups (1–2 per site) will be undertaken with staff and key stakeholders from across the 111 service network. Focus groups will particularly address research questions 2 and 3, examining how work is distributed across the integrated service (division of labour), the role of technology, barriers and facilitators of 111 for work, workforce and organisation. Focus group interviews explicitly use group interactions as part of the data collection process; we would expect the group to consist of about 8 individuals. The precise focus of the focus groups will be further informed by the observational work. A topic guide has been prepared for facilitating the focus groups but will be flexible to allow exploration of issues that might arise from the participants. Potential participants (staff and key stakeholders) will be identified after undertaking some periods of observation at the sites. They will reflect a range of staff in different job roles and from different parts of the integrated care network, to fully understand work and organisation across the urgent care system. We would expect each focus group to last approximately two hours. Two members of the research team will conduct the focus group (one as moderator/facilitator, one as an observer/assistant).

### **Survey**

A questionnaire about information sharing and knowledge, particularly addressing research questions 1 and 4, will be administered across the multiple services and range of staff implicated in 111, to understand trust and knowledge transfer in integrated services. This work will build on questionnaire development and analyses conducted for the previous SDO project, which was designed to capture two key aspects relating to staff; (i) the skills, experience and training of call handlers using NHS Pathways and (ii) call handlers trust in NHS Pathways and the work system in which it is embedded. This project will aim to develop these questionnaires to examine communication, knowledge-sharing and decision-making across the services integrated in 111. The questionnaire will consist of on-line questionnaires if possible, although our previous research has indicated that there may be practical difficulties in administering in this way (for example, some staff may not be allowed or not be able to access the internet whilst they are at work). In the event that on-line questionnaires are not feasible, a paper based questionnaire will be used instead.

### **Integrative multidisciplinary workshop**

An integrative multidisciplinary workshop meeting will be undertaken towards the end of the study to bring together the findings from our work with the activity and economic costing analysis undertaken in the parallel study by the PRP funded team to extend what we know about the use of 111. This synthesis will particularly focus on how much the service is used, how much it costs – and what the implications might be for the work and workforce.

Relevant service, research and policy stakeholders will be invited to the workshop so that the findings are directly conveyed to these communities. This workshop will bring together all aspects of work, workforce, organisational context and technology with the findings from the PRP research team. The focus of the workshop will develop with the emergent findings of our research. We anticipate that this aspect of the study will require qualitative synthesis methods, economic and/or statistical approaches (e.g. Bayesian statistical approaches) to interrogate and integrate findings as appropriate. The health economist on the team will support this work.



### c. Data analysis

For analysis of the qualitative data from the observation and focus groups, we will use our established data clinic approach to share and interpret data collectively, building from emergent themes to narrative and interpretive summaries (ethnographic and focus group data). Team members will initially read and open code a sample of fieldnotes and focus group transcripts. Regular data clinics will be used to ensure collective input and discussion of emerging codes, themes of interest and attention paid to contradictory cases. Data analysis will extend techniques used in the previous project, linking data to the research questions and to the Normalisation Process Theory (NPT), generalizing patterns across cases, as well as drawing upon other sociological concepts and social theory. The analysis will include a mixture of traditional comparative analytical approaches, looking at themes, and matrix techniques using a grid informed by NPT as a broad framework for the analysis to facilitate comparison. To support the process of analysis, focus group transcripts and observational notes will be imported into a qualitative analysis software package, Atlas.Ti 6.1 which will be primarily used to code data and facilitate data management and data retrieval.

Survey analysis will concentrate on descriptive outputs, and will use statistics package PASW, (following double data entry using Excel).

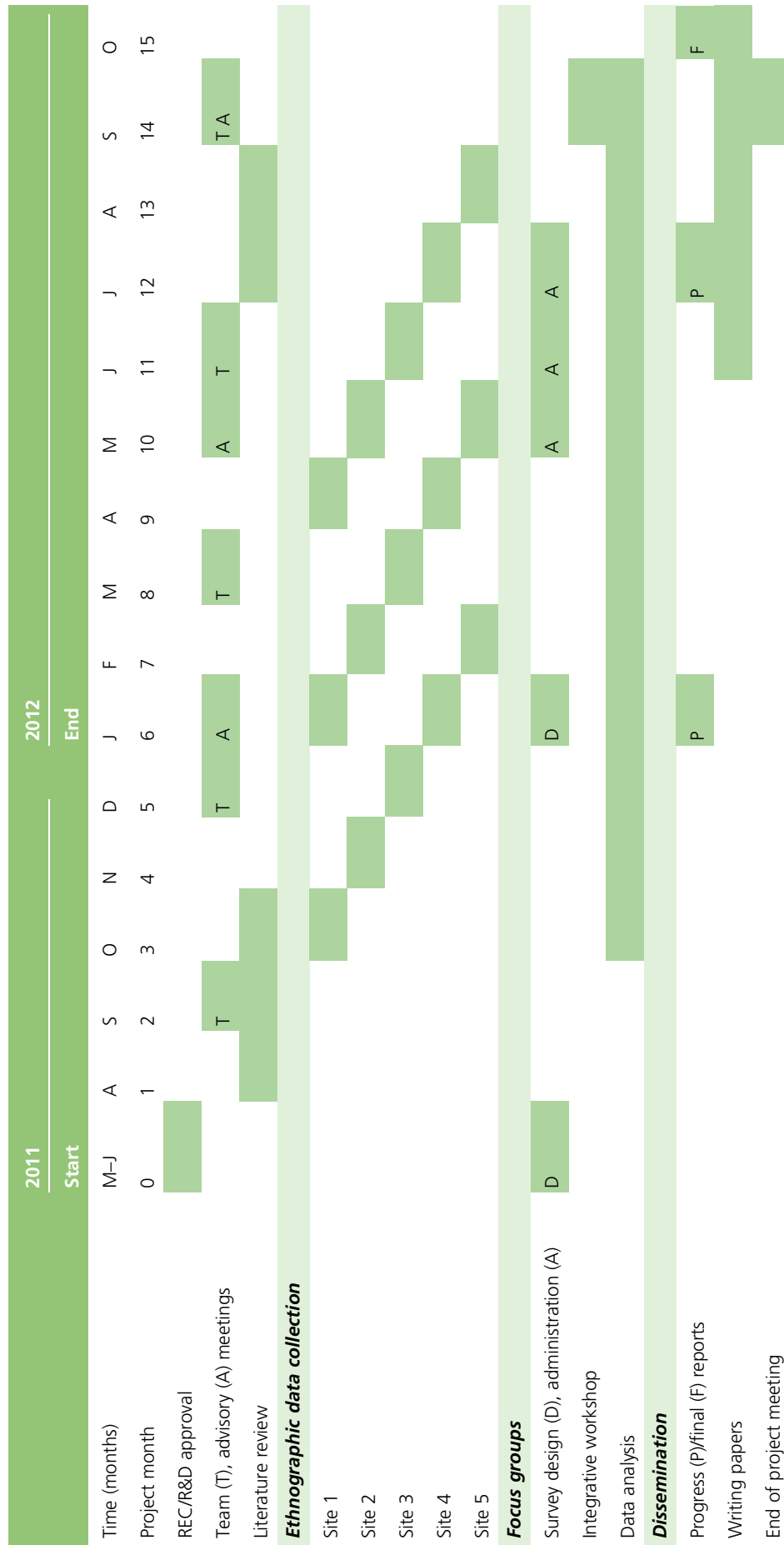
Qualitative synthesis methods, economic models and/or statistical approaches will be used to integrate findings as appropriate in advance of the integrative workshop. We anticipate this aspect of the study will require economic and Bayesian statistical approaches.

Methods will be integrated primarily in two ways. First developmentally – the findings from one method will inform the design and analysis of subsequent components (e.g. ethnography informing the focus groups and vice versa; both of these will inform the survey development). Secondly, the analysis of the results will be integrated by exploring convergence and contradiction in the results derived from different methods – a process of ‘crystallisation’ to provide a more comprehensive account than offered by a single method (O’Cathain and Thomas 2006).

## 5. Plan of Investigation

The team will undertake some initial work before the study fully commences in August 2011, including initial meetings and/or contact with case study sites; ethical approval: and research governance applications; invite and brief advisory group members. The chart below sets out a monthly timetable:

- Months 1–3: liaison with sites, initial visits; finalize ethical approval and governance; literature review; ethnography (site 1); initial survey design; initial team meeting
- Months 4–6: Team and advisory meetings; ethnography (sites 1–4), data clinics/analysis; brief progress report for SDO; focus group design/preparation
- Months 7–9: Ethnography (sites 1–4) data clinics/analysis, survey preparation; focus groups data collection, team meeting
- Months 10–12: Survey administration, team/advisory meetings; update of literature review; ethnography (sites 2–4), survey analysis, ethnographic data analysis; brief progress report for SDO;
- Months 13–15: Update of literature review; advisory and team meetings; integrative workshop with PRP funded study researchers; final report writing and paper writing



## 6. Project Management

The team combines disciplinary expertise in sociology and psychology and considerable experience of health services research. Turnbull will lead and supervise the project, manage the researcher, oversee ethics, governance and fieldwork/surveys, and lead the analysis and reporting. Pope and Halford will contribute to the ethnography and take lead roles in analysis and reporting. Prichard will supervise the surveys and take a key role in analysis and dissemination. Jones will provide expertise in economic modelling, statistical approaches and evidence review, for the integration of our findings with the parallel PRP funded project. May will contribute theoretical expertise, advise on the ethnography and analysis and will make a major contribution to dissemination of findings. Lattimer will support stakeholder liaison/site access, advise on the surveys and analysis of workforce planning implications.

## 7. Dissemination and user engagement

Research will be disseminated summatively through reports and journal articles and formatively to current and future user groups, to maximise the impact of our findings to the future planning and development of the workforce. Outputs will include final reports, and papers for relevant journals to inform the research and policy community in the range of disciplinary and practice fields implicated in this research (e.g. *J Hth Serv Res & Policy*; *Soc Sci Med*; *Sociology*; *Work Employment & Society*; *BMJ*; *Lancet*; *Health Informatics J*). Building on work underway as part of our previous project we will seek to use emerging web technologies (the semantic web) to enable effective dissemination via the web to allow wider engagement. We will seek to disseminate to the health research and provider communities, as well as liaising with SDO network by presenting at service services research conferences (e.g. HSRN SDO Network annual conference, Organisational Behaviour in Health Care), in addition to other appropriate urgent/emergency care and sociology conferences. We will work closely with SDO and our advisory group to prepare findings that can be readily disseminated to target audiences of urgent care service providers, workforce planners, healthcare managers, policy-makers and users of new technologies. We would look to disseminate findings via the NHS Forum.

Relevant stakeholders were consulted (at the Department of Health and urgent care providers) to secure their involvement in developing the proposal. As this new service has potential to impact on the whole population our definition of 'user' is broad and includes patient/lay users of services, staff and organisations using CDSS, and key local and national stakeholders (e.g. CDSS developers, strategic planning/policy, clinical, and IT managers). We will include representatives of these in our advisory group and dissemination plans. The advisory group will meet 3 times during the project. In addition we plan to link the user engagement aspects of our project with the activities of the PRP project by holding at least two joint meetings where the user representatives from both projects meet to discuss the issues and findings from both strands of work.

We will also have links to, and support, of the Work Futures Research Centre at the University of Southampton via the newly formed special interest network on the health and social care workforce. This give us access to an interdisciplinary network of researchers, healthcare policy-makers and NHS managers concerned with innovation in working and organisational practices across health care in the 21st century. We hope to organise a joint workshop/seminar with WFRC to present and discuss our ongoing analyses to facilitate a broad exchange of knowledge and ideas surrounding the study.

In the research sites we will build on successful engagement mechanisms developed in our previous research linking to local R&D and strategic committees to facilitate and disseminate the research. We will also make effective use of regular electronic bulletins and feedback to ensure that staff and stakeholders are kept up to date with the project progress and findings.

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## Appendix 2 Advisory group

### Advisors

Tracy Finch (Senior Lecturer, University of Newcastle)

Shelley Noble (Senior Clinical Nurse Manager, Solent NHS Trust)

Alicia O’Cathain (joint principal investigator of the PRP-funded NHS 111 service evaluation, University of Sheffield)

Francine O’Malley (Senior Nurse in Unscheduled Care and Lecturer, University of Southampton)

Stephen Peckham (Professor of Health Policy, University of Kent and the London School of Hygiene and Tropical Medicine)

Nicholas Reeves (Department of Health advisor)

Arjan Shahani (lay advisor)

Ann Short (lay advisor)

Helen Smith (Professor of Primary Care, University of Brighton)

Janette Turner (joint principal investigator of the PRP-funded NHS 111 service evaluation, University of Sheffield)

### Purpose and activities

The advisory group assisted the project by providing external research and theoretical input and by informing us about relevant practice and policy issues. The group members were invited because of their experience and interest in issues related to the use of technologies in health-care settings and they are drawn from academic, policy-making and health-care arenas. The group also included public/lay representatives with the aim of helping to keep our research relevant and accessible to a wide range of audiences and users.

The group played an important role in helping us think about the implications and dissemination of our findings. We held two meetings over the course of the project in January 2012 and September 2012.

The main focus of each meeting was as follows:

- January 2012: introduction to the research, choosing the case study settings and discussion of urgent and emergency care policy.
- September 2012: feedback on the main findings and structure of the final report.



## Appendix 3 Participant information sheet for observation and focus groups



Research Ethics Committee Reference Number: 11/NE/0198

### 111 URGENT CARE STUDY: WORK, WORKFORCE, TECHNOLOGY AND ORGANISATION

#### Further information for staff and stakeholders at participating sites about the observation and focus groups

##### *The study*

We are studying the work, workforce, technology and the organisational factors that are required to deliver '111' urgent care services. We are using a case study approach which means that we will look at the four 111 pilot sites in detail, including your workplace. The study will include managers, policy makers, health professionals, technical and support staff who have contact with or responsibility for this site. We will conduct focus groups with staff and stakeholders about their experiences of providing or working for the 111 service, observe staff undertaking their everyday work, and use questionnaires to collect information for this study.

This information sheet tells you about the observation and focus group part of the study

##### *About the observation*

For this part of the study one to two researchers will come to your workplace to watch how staff work and how NHS Pathways and other technologies are used. The purpose of the research is not to assess or audit staff performance. No information about individuals will be reported back to managers at your organisation. We will display posters to inform you when the observation is taking place and if the researcher is observing an area where you work they will ask you for verbal consent before they begin observing. The researcher will sit or stand somewhere out of the way so that they do not interfere with your work and they will watch and take notes. If you have any questions or concerns before or during the observation period you can ask the researcher. If you want them to stop observing or move to another location you can ask them to do so at any time. If you do not want to take part in this part of the study you can tell the researcher before or during the observation and they will not include you. The researcher will be happy to answer any questions you have about the observation or the study – please do not hesitate to ask.

##### *About the focus groups*

We plan to conduct focus groups (a group discussion with approximately eight to 10 people) with some (but not all) of the staff here about the 111 urgent care service. We will choose staff with different jobs/roles to tell us about their experiences of providing the 111 urgent service and look at the technologies used (e.g. NHS Pathways, appointment booking systems). If we want to invite you to participate in a focus

group, a member of the research team will approach you, and if you want to take part they will fix a time that is convenient for you and the other focus group participants.

The focus group will take approximately 1–2 hours and will take place in a meeting room. Before the focus group starts the researcher will explain the study to you and go through a consent form with you to make sure you are happy to take part. The focus group will be a group discussion facilitated by one of the researchers. We will ask the group about their experiences of working in the 111 services, and their use of technology in providing the service. We will not be asking anything about individual patients or patient records. With your permission we will record the focus group. You can ask questions before and during the focus group and the researcher will be happy to tell you more about the study. You can decide not to take part in the focus group and can tell the researcher (or withdraw from the focus group) if you decide during the focus group that you do not want to participate in the group discussion. Direct quotes from focus group participants may be used when writing up the project (e.g. final report, journal publications), but all quotes will be anonymised (we will not refer to you by name), or use information that could identify you (e.g. very specific job titles).

### ***Do I have to take part?***

No. It is up to you to decide whether or not to take part. Declining to take part in the study will not affect your current or future job role in any way.

### ***Confidentiality***

All of the data we collect will be kept strictly confidential. Focus group recordings and typed up transcripts of the focus groups and observation notes will only be accessed by the study team and will be kept in password-protected computer files and/or a locked cabinet. All personal details and information that can identify individuals will be removed from the data when it is being analysed and reported. The study will be carried out in full compliance with all relevant guidance from the NHS ethics committee, NHS research governance and Data Protection legislation.

### ***What are the possible problems and disadvantages of taking part?***

We do not anticipate any problems arising from participation in this study. We will not ask you to change anything about the way you work and you do not have to take part if you do not want to.

### ***What are the possible benefits of taking part?***

There are unlikely to be direct personal benefits to you from this study. Some people enjoy participating in this kind of research and welcome the opportunity to talk about their work. We will feed back our findings to you and keep you regularly updated about the study.

### ***Who is funding and organising the research?***

The research is a collaboration between the Universities of Southampton and East Anglia. It is funded by the National Institute of Health Research Service Delivery and Organisation programme but the research team is independent – we do not work for the trust you work for.

### ***What will happen to the results of the research study?***

The results of this study will be written up for a report to the funders and for the ethics committee and for publications that will be read by health professionals and health service managers and other researchers. We will be happy to send you a free copy of the research report if you tell us you would like one.

### ***Who has reviewed the study?***

The study has been reviewed by the National Institute for Health Research, the [name of] Research Ethics Committee and your local trust in accordance with the research governance framework.



***Who can I contact if I have a concern or complaint about this study?***

You can contact the project leader, Joanne Turnbull (details below), if you have any concerns about this study or a complaint. If you would prefer to contact someone independent from the research team you can contact: Research Governance, Corporate Services, Building 37, Level 4, Room 4001, University of Southampton, Highfield Campus, Southampton, SO17 1BJ, tel. 023 8059 5058 or email [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk).

***Contact details:***

If you have any questions about the study please contact the project leader, Joanne Turnbull, on 023 8059 7940 or [jct@soton.ac.uk](mailto:jct@soton.ac.uk), Faculty of Health Sciences, University of Southampton, Highfield Campus, Southampton, SO17 1BJ.



## Appendix 4 Topic guide for the focus groups



Research Ethics Committee Reference Number: 11/NE/0198

### 111 URGENT CARE STUDY: WORK, WORKFORCE, TECHNOLOGY AND ORGANISATION

#### Focus group topic guide for staff and stakeholders

##### *Outlining the aims of the study and focus group*

- This study is being carried out by the University of Southampton and University of East Anglia. The study is being funded by the National Institute for Health Research Service Delivery and Organisation programme, but the research is independent – we do not work for the NHS or the trust that you work for.
- Whilst research has been commissioned to examine activity and patient perspectives surrounding 111, it is important to also examine the work required to deliver the service, the types of workforce and skill mix required, the interlinked technologies that will be brought into use, and the wider organisational implications of the introduction of this new service, which represents a large-scale and fundamental change in the way urgent care is delivered.
- In this group discussion we will ask you about your day-to-day work and 111 service provision, as well as discuss the impact of 111 service provision on the urgent care workforce, the technologies that you use and how they work, and about some of the wider organisational factors that affect the 111 service.
- The purpose of this research is not to assess or audit staff performance.
- This is one of several group discussions being carried out with a range of staff and stakeholders that are involved in providing the 111 service. Focus groups are being held in each of the 111 pilot sites.

##### *Instructions/format of the discussions*

- Check participants have received and read project information. Recap, answer questions as necessary.
- This is an opportunity to discuss your experiences of working within the 111 service.
- The focus group is a discussion not a question-and-answer session and we anticipate that it should last between an hour and a half to two hours.
- We would like to tape record it to make sure we get an accurate record of what is said. Then it will be transcribed and analysed for our project report back, but everything you say will remain anonymous throughout the research – all names will be removed and no comments will be attributable to any identifiable individual.
- We would also ask you to respect each other's confidentiality about any personal details shared today.
- *Talk through consent form and gain permission to tape record. Ask participants to sign the consent form.*
- Any questions before we start? (NB Check everyone has signed consent forms)

## Background

- Let's start by introducing ourselves. We will go round the table to introduce everyone.
- If you could include your name and briefly the nature of your job role.
- The 111 pilots have changed the way that urgent care services link together and how care is provided. I would imagine that some of you might be new to the 111 service and some will have experiences of working within urgent care before 111 was introduced. I'd like to start by asking each of you to describe BRIEFLY your background, for example how long you have worked in both your current post and how long you have worked for the NHS.

*PROMPT – Length of service in NHS; previous roles; previous urgent or emergency care experience; main day-to-day tasks associated with their job*

## Changes in work, roles and responsibilities with the introduction of 111

- Has their job changed in type/nature of work since 111 introduction?

*PROMPT – Reasons for and nature of changes in the context of the wider changes within the NHS and urgent and emergency care provision; reasons for and nature of impact*

- Impact on everyday work – nature and scope of work/responsibilities

*PROMPT – Has the work changed – overall and day-to-day; impact on nature and scope of work/responsibilities, job/workload/management of work – complexity? Intensity?*

- Team working and sharing knowledge about provision of 111

*PROMPT – Contact between 111 organisations – has the work changed*

## Staff development, skills and training

- Has the 111 service necessitated learning new (or updating) skills for staff?

*PROMPT – Necessity or choice? Nature and reasons for updating; qualifications – professional/academic*

- Explore any training gaps

*PROMPT – Training received; internal/external? What sort of training do you think is needed? What would help? Formal mechanisms for identifying skills shortages/gaps? Informal mechanisms?*

- Has the 111 service seen the creation of new staff roles?

*PROMPT – Explore any new or extended roles; were they anticipated prior to the introduction of 111*

- Monitoring/auditing of staff/feedback on performance

## Technologies

- History of working with NHS Pathways and other technologies

*PROMPT – Were these new technologies with 111 introduction or previous history. Have they worked with other CDSS prior to 111 – comparison; any problems/workarounds? What do they like/dislike about this CDSS?*

- Explore confidence and trust in NHS Pathways and other technologies

### **Organisational context**

- Facilitators and barriers to implementation of 111
- NHS policy and 111
- How did the pilot come about
- What do you see the benefits/challenges of 111
- Resources needed – and why

*PROMPT – Financial; staff; space; technical support; equipment*

- Resources lacking – and why?

### **The future of the 111 service**

- Is it working? Has it delivered what you wanted or expected it to deliver?
- Where do you see it heading?
- Longer-term implications

### **Rounding up**

- Thank participants for their time
- Make sure they have researchers contact details



## Appendix 5 Consent form for focus groups



### 111 urgent care study

#### Work, workforce, technology and organisation

Research Ethics Committee Reference Number: 11/NE/0198

Site Number: \_\_\_\_\_ Participant Number: \_\_\_\_\_

#### FOCUS GROUPS

#### STAFF AND STAKEHOLDER CONSENT FORM

Please initial box

1. I confirm that I have read and understood the **Participant Information Sheet "111\_urgent\_care\_study\_further\_information\_for\_staff\_stakeholders" v2.0 Dated 080711** for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.
3. I agree that the focus group will be tape-recorded
4. I understand that anonymous quotations from this focus group may be used in reports, papers and presentations arising from this study
5. I agree to take part in the above study

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**We will send you a photocopy of this form to keep.**

If you have any questions about the study please contact the project leader, Joanne Turnbull on 023 8059 7940 or [jct@soton.ac.uk](mailto:jct@soton.ac.uk)

*When completed: 1 for participant, 1 for researcher*



## Appendix 6 Online survey for staff



### NHS 111 Study

This questionnaire asks you about your views and experiences of working as part of NHS 111.

**All information you give will be treated confidentially and will only be seen by the researchers. Your individual responses will not be shown to anyone at your organisation.**

Please read the enclosed leaflet which explains the research in more detail and how we will keep your responses confidential. It is up to you to decide whether or not to take part.

#### Instructions For Completing the Questionnaire

Please take your time and answer the questions as accurately as possible.

This questionnaire should take about 15 minutes to complete. When you have completed the questionnaire, please put your questionnaire form in the envelope provided. The questionnaire can either be:

1. posted directly to Alison Rowsell, in the FREEPOST envelope provided (Faculty of Health Sciences, Building 67, University of Southampton, Highfield, Southampton, SO17 1BJ )

or alternatively,

2. complete the survey online at <https://www.isurvey.soton.ac.uk/...>

Thank you for your time

Site code 5   1   1   8

Respondent ID

**Some questions about you**

**1a. If you work for a 111 call answering service, please indicate your main role in that organisation**

Call handler <input type="checkbox"/> 1	Call handler manager/supervisor <input type="checkbox"/> 2	Senior Manager <input type="checkbox"/> 3
Nurse <input type="checkbox"/> 4	Paramedic <input type="checkbox"/> 5	Emergency Care Practitioner <input type="checkbox"/> 6
Nurse Practitioner <input type="checkbox"/> 7	GP <input type="checkbox"/> 8	Other <input checked="" type="checkbox"/> 9

If other, please specify .....

**OR**

**1b. If you work for a 111 health service provider please indicate your main role in that organisation**

Service Manager <input type="checkbox"/> 1	Health care assistant <input type="checkbox"/> 2	Nurse <input type="checkbox"/> 3
Paramedic <input type="checkbox"/> 4	Emergency Care Practitioner <input type="checkbox"/> 5	Nurse practitioner <input type="checkbox"/> 6
GP <input type="checkbox"/> 7	Other <input type="checkbox"/> 8	

If other, please specify .....

**2. How long have you worked for your organisation?**

<input type="text"/>	Years	<input type="text"/>	Months
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**3. How long have you used NHS Pathways – the computer system used to support 111 calls? (Please go to question 4 if this question is not applicable)**

<input type="text"/>	Years	<input type="text"/>	Months
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**About NHS 111**

Please rate how you feel about the system by circling a number for each statement

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Not agree or disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
4. NHS 111 enables patients to access urgent care services easily	1	2	3	4	5
5. NHS 111 ensures that patients reach the 'right service' for their problem	1	2	3	4	5
6. NHS 111 ensures that patients receive the care they need within the correct time frame	1	2	3	4	5
7. NHS 111 effectively manages demand for urgent care services	1	2	3	4	5
8. NHS 111 is a cost-effective way of assessing and managing patients	1	2	3	4	5
9. NHS 111 is a better way of administering urgent care services than previous systems	1	2	3	4	5
10. NHS 111 is a valuable addition to the NHS	1	2	3	4	5
11. NHS 111 is designed to act in the best interests of patients	1	2	3	4	5
12. NHS 111 is designed to act in the best interests of health service providers	1	2	3	4	5

## Information transfer and communication

Please rate how you feel by a number for each statement

	Strongly Disagree	Disagree	Not agree or disagree	Agree	Strongly Agree
13. The information in the Directory of Services (used by call handlers to direct callers to services) is accurate	1	2	3	4	5
14. The Directory of Services is 'up-to-date'	1	2	3	4	5
15. The NHS Pathways 'Call Summary' about the patient is useful for health professionals	1	2	3	4	5
16. NHS 111 Technology (e.g. NHS Pathways, appointment booking systems) works reliably	1	2	3	4	5
17. The technologies used in NHS 111 connect together well (i.e. allow information to flow between them)	1	2	3	4	5
18. It is easy to make contact with other parts of the NHS 111 service if I need to	1	2	3	4	5
19. Communicating with other local NHS 111 services is often necessary to ensure the patient receives the appropriate care	1	2	3	4	5
20. Communicating with other local NHS 111 services is very time consuming	1	2	3	4	5
21. Communication with other staff at local NHS 111 services is supportive of each other's work	1	2	3	4	5

## Trust in NHS Pathways

	Strongly Disagree	Disagree	Not agree or disagree	Agree	Strongly Agree
22. NHS Pathways reaches safe call dispositions	1	2	3	4	5
23. NHS Pathways reaches dispositions that are clinically correct	1	2	3	4	5
24. NHS Pathways is effective in assessing urgent care calls (e.g. 'out of hours', non-emergency)	1	2	3	4	5
25. NHS Pathways is effective in assessing emergency (999) calls	1	2	3	4	5
26. NHS Pathways is effective in directing patients to the appropriate service	1	2	3	4	5
27. NHS Pathways is able to deal with a wide range of call scenarios	1	2	3	4	5
28. NHS pathway dispositions are fair towards patients	1	2	3	4	5
29. Monitoring and auditing of call-handling performance ensures that call assessment using NHS Pathways is safe	1	2	3	4	5
30. Clinical advisors to support call-handlers in call-handling centres is necessary for the effective delivery of NHS 111	1	2	3	4	5
31. I think it is safe for non-clinical call-handlers to assess calls supported by NHS Pathways	1	2	3	4	5

If there are any other comments you would like to make about NHS 111, please do so:

Please return your completed questionnaire either by posting directly to Alison Rowsell using the prepaid envelope provided, or by placing the questionnaire in the sealed envelope and handing to your manager.

**Thank you very much for completing this questionnaire. We greatly value both your responses and the time you have taken to give them.**



# Appendix 7 Participant information sheet for the survey



Research Ethics Committee Reference Number: 11/NE/0198

## 111 URGENT CARE STUDY: WORK, WORKFORCE, TECHNOLOGY AND ORGANISATION

### Further information for staff and stakeholders at participating sites

#### *About the survey*

#### **Invitation to participate**

We would like to invite you to take part in this research study by completing a survey. Before you decide whether or not to take part, please take time to read the following information which explains why this research is being done and what your involvement would consist of. Talk to others if you wish, and please feel free to ask questions if there is anything that you are unsure of. Thank you for reading this.

#### **The study**

We are studying the work, workforce, technology and the organisational factors that are required to deliver '111' urgent care services. We are using a case study approach which means that we will look at the four 111 pilot sites in detail, including your workplace. The study will include managers, policy makers, health professionals, technical and support staff who have contact with or responsibility for this site. We will conduct focus groups with staff and stakeholders about their experiences of providing or working for the 111 service, observe staff undertaking their everyday work, and use questionnaires to collect information for this study.

*This information sheet tells you about the survey part of the study*

#### **Why have I been chosen to take part?**

We are asking all staff at your workplace to take part because you work in an organisation that has agreed to participate in the study.

#### **Do I have to take part?**

No, taking part in this study is voluntary. It is up to you to decide whether or not to take part. You are not obliged to take part in the research just because your organisation is participating.

#### **What will happen to me if I take part?**

For this part of the research, we would like you to complete a survey which asks you about your work which should take you about 15 minutes to complete. We would like to know about your views and

experiences of you working in the 111 urgent care service. This will enable us to understand how the 111 service works and how it might be successfully implemented at other locations in the future.

### **How do I take part?**

There are two ways to complete the questionnaire. Firstly you can complete the enclosed paper questionnaire and return the completed questionnaire in the Freepost addressed envelopes that we have supplied. This can either be put in the locked box located at your organisation or it can be posted directly to Alison Rowsell, Faculty of Health Sciences, University of Southampton, [Freepost ID/address], Highfield, Southampton, SO17 1BJ.

Secondly, you can complete the questionnaire online at [web address].

### **Confidentiality**

All of the data we collect will be kept strictly confidential. All data will be handled in accordance with the Data Protection Act 1998. Your surveys will be kept in a secure cabinet in the university. Your organisation will not have access to your completed questionnaire. The information you give us in the survey will be entered into an anonymised database which will not contain any personal details about you. The study will be carried out in full compliance with all relevant guidance from the NHS ethics committee, NHS research governance and Data Protection legislation.

### **What are the possible problems and disadvantages of taking part?**

We do not anticipate any problems arising from participation in this study.

### **What are the possible benefits of taking part?**

There are unlikely to be direct personal benefits to you from this study. Some people enjoy participating in this kind of research and welcome the opportunity to give their views about their work. We will feed back our findings to you and keep you regularly updated about the study and we hope that you will find this interesting.

### **Who is funding and organising the research?**

The research is a collaboration between the Universities of Southampton and East Anglia. It is funded by the National Institute for Health Research Service Delivery and Organisation programme but the research team is independent – we do not work for the trust or NHS organisation that you work for.

### **What will happen to the results of the research study?**

The results of this study will be written up for a report to the funders and for the ethics committee and for publications that will be read by health professionals and health service managers and other researchers. We will be happy to send you a free copy of the research report if you tell us you would like one.

### **Who has reviewed the study?**

The study has been reviewed by the Department of Health, the [name of] Research Ethics Committee and your local trust in accordance with the research governance framework.

### **Who can I contact if I have a concern or complaint about this study?**

You can contact the project leader, Joanne Turnbull (details below), if you have any concerns about this study or a complaint. If you would prefer to contact someone independent from the research team you can contact: Research Governance, Corporate Services, Building 37, Level 4, Room 4055, University of Southampton, Highfield Campus, Southampton, SO17 1BJ, tel. 023 8059 5058 or email [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk).



**Contact details:**

If you have any questions about the study please contact the project leader, Joanne Turnbull, on 023 8059 7940 or [jct@soton.ac.uk](mailto:jct@soton.ac.uk), Faculty of Health Sciences, University of Southampton, Highfield Campus, Southampton, SO17 1BJ.





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**EME  
HS&DR  
HTA  
PGfAR  
PHR**

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