

ORIGINAL ARTICLE

The remarkable invisibility of NHS 111 online

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Funding information

Health Services and Delivery Research Programme, Grant/Award Number: NIHR127590

Abstract

In 2017, the NHS 111 telephone service was augmented by an online service. This is an exemplar of ‘digital-first’, the push to enrol digital technologies to deliver services, and is viewed by policymakers as an important vehicle for managing demand for overburdened health services. This article reports the qualitative component of a larger multi-method study of NHS 111 online. Qualitative telephone interviews with 80 staff and stakeholders implicated in primary, urgent and emergency care service delivery explored the impact of NHS 111 online on health-care work. The analysis presented here draws on Susie Scott’s work on the ‘sociology of nothing’ and theories of the marked and unmarked, which we reached for when confronted by the remarkable invisibility of this seemingly core NHS service in the wider landscape of health care. Despite the apparently high use by patients and the public (30 million visits over 6 months in the 2020 pandemic), we were surprised to find very low awareness among our interviewees. Confusion about nomenclature, an exceedingly crowded digital field (littered with alternative technologies and ways of accessing care) and constant change in service provision provide some cogent reasons for this invisibility, and sociology helps explain our data about this digital technology.

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KEYWORDS

digital health, interviews, NHS 111 online, sociology of nothing, urgent care

INTRODUCTION

Something is but nothing, Something it is not
Nil plus nil is nothing, Nothings what I got.

(John Cooper Clarke, from the LP *Où est la maison de fromage?* 1978 Epic records)

Clinical triage, a way of assessing and prioritising urgent and emergency health-care needs was finessed on battlefields. In war, experienced clinicians are deployed to the frontline to make rapid assessments of injuries, judge likelihood of survival, and prioritise immediate treatment or movement to care facilities. In the comparatively more peaceful civilian context of primary care, GP receptionists and triage nurses in emergency departments provide a similar function, sorting and prioritising patients. The everyday work of health-care workers involved in triage has been the subject of some, albeit, modest scrutiny (c.f. Arber & Sawyer, 1985; Hughes, 1989; Hillman, 2013; Johannessen, 2018; Van Pijkeren et al., 2021). Perhaps inevitably, digital technologies, which have pervaded so much twentieth century health-care delivery, have been increasingly enrolled in this triage activity. In the UK NHS, in addition to receptionists and triage nurses in face-to-face care, triage for urgent and emergency care is provided remotely via the 111 and 999 telephone services. These services are predominantly staffed by non-clinical personnel who use a computer decision support software to support the triage and assessment process. In 2017, an online version of NHS 111 was introduced, bypassing the call handling staff and pushing triage work onto patients and users of this service. NHS 111 online is an exemplar of a broader 'digital-first' policy (NHS England, undated; Local Government Association, 2014), which attempts to enrol digital technologies in the frontline delivery of public and private services. Digital-first in the NHS promises to deliver modern, accessible, and effective health services to patients and for policymakers. It is also seen as offering a potential mechanism for reducing demand for other overburdened health-care services and perhaps for cutting costs. This article is about NHS 111 online, and it explores and attempts to explain the remarkable invisibility of this seemingly core NHS service to health professionals working in the wider landscape of urgent and emergency health care. Analysis of our data leads us to question the promise of the digital-first model of delivery for urgent care, and the 'success' of this attempt to outsource the work of triage to patients and the public.

The analysis presented here owes an intellectual debt to the work of Scott (2018) on the 'Sociology of Nothing' and her articulation and elaboration of earlier scholarship, notably work by Brekhus (1998). Scott's symbolic interactionist analysis explains the 'micro-social processes through which people come *not* to do or become things that they might otherwise have been' (p. 5). She says "'Nothing" as a social accomplishment, therefore, has implications for self, others and interaction order, making it paradoxically "something" worthy of study' (p. 15). In this article, we use Scott's ideas to help us understand and explain the apparent invisibility of NHS 111 online in the landscape of NHS urgent care. We extend Scott's analysis, which necessarily focussed on human interactions, to enfold an understanding of how digital technology becomes invisible to frontline health-care staff.

A BRIEF HISTORY OF NHS 111 ONLINE

The NHS has provided a telephone triage and assessment service for urgent health care since the late 1990s, first as NHS Direct, and, since 2015, as NHS 111 (eponymously named after the three-digit telephone number used to access this service). The 111 telephone service was augmented in 2017 by a web-based service, NHS 111 online. This provides assessment and triage via a smartphone, tablet or computer, bypassing the human-assisted triage offered in face-to-face or telephone services. NHS 111 online is available 24 h a day and uses a computer decision support system based on the software used by the call handlers in the 111 telephone service. This comprises a tailored algorithm that asks users to answer a series of linked questions about symptoms or health concerns, culminating in 'dispositions' that direct users to appropriate health services or self-care advice. The NHS 111 online service is designed to triage and assess people aged 5 and over (the telephone service has a wider remit and can triage younger children).

A key tenet of NHS 111 services, both telephone and online, is that they empower people 'to manage their own health and care'. This resonates with the idea of responsabilisation (Brown, 2013; Rose, 1990) and has obvious links with critical analyses of the way the neoliberal state and its welfare and health apparatuses increasingly push the management of risk onto citizens (Clarke, 2005). In shifting the work of triage and managing urgent health-care needs onto the patient/service user, the online version of NHS 111 is also an important exemplar of 'digital-first', the enrolment of digital technologies in the frontline delivery of public and private services. For health service providers, digital-first holds out the promise that it will effectively manage and, ideally, reduce the demand for face-to-face urgent and emergency care, or at the very least, halt the upward trend in the use of such services. The idea that patients/users will 'do the work' of triage and assessment supported by standardised computer software intuitively makes sense in a world where banking and insurance and swathes of local government services have moved online. In addition, NHS 111 online is seen as a vehicle for reducing demand for the telephone 111 service, which has grown inexorably since its introduction, without, seemingly, reducing demand for other services (Pope et al., 2017).

NHS 111 online in the COVID-19 pandemic

In June 2020, during the COVID-19 pandemic, questions about coronavirus symptoms were incorporated into the core NHS 111 online service. In the autumn of 2020, NHS 111 online began trials of a new online booking facility that allowed patients directed to attend an emergency department (ED) to select an arrival time. By December 2020, this '111 First' or 'call-before-you-walk' scheme was introduced, initially in London and Portsmouth, requiring patients to contact NHS 111 before attending the ED. 111 First was part of a wider 'Protect the NHS' policy that attempted to reduce the use of face-to-face NHS services and prevent the spread of COVID-19. In November 2021, NHS England launched the 'Help Us, Help You' advertising campaign, which urged people to use NHS 111 online for urgent but not life-threatening medical issues to allow the NHS to care for more seriously ill people in EDs, as an extension of this policy (The Guardian, 2021).

THE STUDY

This article reports the qualitative component of a larger multi-method study of NHS 111 online. We used qualitative telephone/online interviews to explore the impact of NHS 111 online on

health-care work and workforce arrangements in the wider health-care system. Informed by a broad interpretivist perspective, our research team included medical sociologists and health services researchers who brought experience of previous studies of NHS urgent and emergency care and an interest in a range of social theories, including ideas about the social shaping of technologies (Bijker et al., 1987) and concepts focussing attention on the affordances and accessibility of technologies (e.g. Hutchby, 2001; Petrakaki et al., 2016). These ideas informed the original study design, and we envisaged that they would inform the analysis. However, we must be clear at the outset that Scott's 'sociology of nothing' was not foregrounded in the research design or data collection but was enrolled during the analysis to help us make sense of our findings.

Sampling and recruitment

The study focussed on NHS primary, urgent and emergency care services, and, recognising that access to digital services might be patterned by health and socio-economic inequalities, we made efforts to recruit frontline staff interviewees from places in England that served populations with high deprivation scores and mixed socio-demographic profiles in terms of age and the presence of ethnic minority groups. We used National Literacy Trust literacy scores as a proxy indicator of potential access barriers for an online service. Together, these indicators helped us to target recruitment of staff interviewees in general practices, urgent care centres and hospital Emergency Departments located in the North West Coast, Yorkshire and Humber, West Midlands and South Midlands, Eastern Counties, Kent Surrey and Sussex, London, Wessex and Thames Valley. Discussions with the study steering group and stakeholders from NHS organisations, including Clinical Commissioning Groups, NHS England and NHS Digital and the NIHR Clinical Research Networks, also influenced our sampling strategy and ensured that we pursued maximum variation in the selection of sites and services. As the study progressed, informed by interim analyses, we broadened our sample to include staff from community NHS organisations, NHS dental services and a small number of third sector/charity organisations identified as having links to, or who worked with, people who were likely to use NHS 111 online. The final set of interviews included service commissioners, managers, frontline clinicians and administrative staff and individuals who held national and regional NHS or third sector policy or strategic roles. Interview participants were invited to take part by email, provided with an information leaflet and asked to provide written or verbal consent.

The interviews

A total of 80 interviews were conducted, 33 with staff in primary care (Table 1) (designated by PC in the quotation identifiers), 27 from urgent and emergency care (identified as ED), nine dental service providers (D) and 11 representatives of charities and non-NHS services, including peer-workers (CH) representing vulnerable and disadvantaged groups such as homeless and refugees, people with mental illness and people who struggle with literacy.

Telephone and online interviews took place between October 2020 and July 2021 and were conducted by experienced qualitative researchers (Jennifer MacLellan, Catherine Pope, Joanne Turnbull). Interviews lasted on average for 30 min and were audio recorded and transcribed. We used a loose topic guide that asked about experiences with the interface between NHS 111 online and other services, and the work undertaken because of, or associated with, NHS

TABLE 1 Characteristics of participants in telephone interviews

ID	Site	Role	Gender
PC01	Primary Care London	Paramedic	m
PC02	Primary Care London	Pharmacist	m
PC03	Primary Care London	GP	f
PC04	Primary Care London	GP	m
PC05	Primary Care London	Pharmacist	m
PC06	Primary Care London	GP	f
PC07	Primary Care London	GP	m
PC08	Primary Care London	Care navigator	f
PC09	Primary Care London	Care navigator	f
PC10	Primary Care North West	Nurse	f
PC11	Primary Care North West	Nurse	f
PC12	Primary Care North West	Care navigator	f
PC13	Primary Care North West	GP	m
PC14	Primary Care North West	GP	m
PC15	Primary Care North West	Pharmacist	f
PC16	Primary Care North West	Receptionist	f
PC17	Primary Care North West	Nurse	f
PC18	Primary Care North West	GP	f
PC19	Primary Care North West	Nurse	f
PC20	Primary Care North West	Quality lead/manager	f
PC21	Primary Care North West	Reception manager	f
PC22	Primary Care North West	Reception manager	f
PC23	Primary Care North West	Care navigator	f
PC24	Primary Care North West	Care navigator	f
PC25	Primary Care North West	Care navigator manager	f
PC26	Primary Care North West	GP	f
PC27	Primary Care North West	Nurse	f
PC28	Primary Care North West	Care navigator	f
PC29	Primary Care North West	Receptionist	f
PC30	Primary Care North West	Paramedic	f
PC31	Primary Care Midlands	GP	m
PC32	Primary Care Yorkshire	GP	m
PC33	Primary Care Yorkshire	GP	f
ED01	Emergency Care East	ED nurse	m
ED02	Emergency Care East	Receptionist	f
ED03	Emergency Care East	Pharmacist	f
ED04	Emergency Care East	ED nurse	m
ED05	Emergency Care East	ED doctor	m

(Continues)

TABLE 1 (Continued)

ID	Site	Role	Gender
ED06	Emergency Care East	Senior manager	m
ED07	Emergency Care South East	GP in ED	f
ED08	Emergency Care South East	ED nurse	f
ED09	Emergency Care South East	GP in ED	f
ED10	Emergency Care South	Quality lead/manager	f
ED11	Emergency Care East	Senior manager	m
ED12	Emergency Care East	ED nurse	f
ED13	Emergency Care East	ED doctor	f
ED14	Emergency Care East	ED doctor	m
ED15	Emergency Care East	ED doctor	f
ED16	Emergency Care East	ED doctor	m
ED17	Emergency Care East	ED nurse	m
ED18	Emergency Care South East	ED nurse	m
ED19	Emergency Care South East	ED nurse	f
ED20	Emergency Care South East	Receptionist	f
ED21	Urgent Care Midlands	UCC Nurse	f
ED22	Urgent Care Midlands	UCC Nurse	f
ED23	Emergency Care South East	ED doctor (trainee)	f
ED24	Emergency Care South East	ED doctor (trainee)	m
ED25	Urgent Care Midlands	MIU Receptionist	f
ED26	Urgent Care Midlands	MIU Receptionist	f
ED27	Urgent Care Midlands	MIU nurse	f
D01	Dental, London	Dentist	f
D02	Dental, Midlands	Emergency Dentist	f
D03	Dental, North East	Dentist	f
D04	Dental, North East	Associate Dentist	m
D05	Dental, Yorkshire	Associate Dentist	f
D06	Dental, South East	Dentist	f
D07	Dental, North	Emergency Dentist	m
D08	Dental, Yorkshire	Dentist	f
D09	Dental, North East	Dentist	f
CH01	Homeless charity	National policymaker	f
CH02	Homeless charity	National policymaker	f
CH03	Homeless charity	National policymaker	f
CH04	Mental Health charity	Service provider	m
CH05	Literacy charity	National policymaker	f
CH06	Refugee charity	National policymaker	f
CH07	Homeless charity	Peer support worker	f
CH08	Homeless charity	Peer support worker	f

TABLE 1 (Continued)

ID	Site	Role	Gender
CH09	Homeless charity	Peer support worker	m
CH10	Homeless charity	Peer support worker	m
CH11	Homeless charity	Peer support worker	m

111 online. We were especially interested in impacts on work content, for example, whether general practice staff recommended NHS 111 online to patients, how services managed patients 'referred' to them by NHS 111 online and the impact of NHS 111 on the wider health-care system.

Alongside these interviews, we collected and analysed a range of policy documents and public facing health education information about the urgent and emergency care system to learn more about NHS 111 online within this wider system.

Analysis

Thematic analysis proceeded from reading and rereading transcripts for familiarisation, initial open coding followed by discussion in the team leading to the development of a draft coding framework. Coding and data retrieval was supported by the use of NVivo (QSR International Pty Ltd, 2020). Initial codes were discussed and grouped to identify themes, and we used mind maps and matrix/charting and OSOP (one sheet of paper) techniques (Ziebland & McPherson, 2006) to display, compare and refine these. Themes and anonymised data excerpts were shared with the wider research team and with steering and patient and public involvement groups who were asked to consider the credibility of our interpretations and their feedback in turn shaped further analysis.

As we embarked on the analysis to examine the impact of NHS 111 online on health-care work and workforce arrangements, one feature stood out. There was considerable confusion, and often ignorance, amongst our interviewees about NHS 111 online, in particular about if and how it differed from the telephone service. Our data collection took place three years after the initial roll out of NHS 111 online and coincided with a pandemic during which there were national high-profile public education campaigns about the service, alongside specific NHS initiatives such as '111 First', which promoted the use of the online and telephone services. The 111 service was the subject of a national advertising campaign that included adverts on TV, at bus shelters and posters in health-care settings, throughout the period of data collection. The exhortation to 'Protect the NHS' had enforced a pivot to remote and virtual services for most first contacts in primary and secondary care during the pandemic. In March 2020, NHS England reported that in less than a week, more than one million people had used the dedicated coronavirus update to NHS 111 online to seek advice about COVID-19 (NHS England, 2020). NHS 111 online usage figures increased to 30 million visits between February and August 2020. Given this context, the lack of awareness about NHS 111 online amongst our interviewees puzzled us. Our analysis pointed to two related themes in the data: firstly, the extremely crowded digital field within which NHS 111 online was located, and secondly, the mutable and therefore confusing landscape of service provision in urgent and emergency care. Below, we present our analysis, describing invisibility, followed by these themes of 'crowded digital field' and 'mutable service landscape'.

THE (IN)VISIBILITY OF NHS 111 ONLINE

Our interviewees were all people working in health-care services or in roles where they could be expected to interact with people who had used or might be expected to use NHS 111 online. The 111 online service regularly advises users to consult their GP or attend an ED or urgent care centre, and all our interviewees were in roles where they and their co-workers could signpost patients and the public to the online service. We were therefore surprised to find very low levels of awareness of NHS 111 online among our interviewees, as the quotes below illustrate:

If I'm really honest I don't think I was aware that there was a new online service until I got the information through for this study.

(PC18, GP)

To be honest I wasn't aware that 111 was online.

(PC22, Reception manager)

I didn't even know there was a website.

(CH10, Peer support worker)

The lack of awareness of NHS 111 online did not appear to be linked to job role or location. When, exceptionally, an interviewee reported that they knew about 111 online, this was typically the result of personal use. As the pandemic progressed, a few interviewees suggested that the visibility of NHS 111 online had increased with the push to use the web for COVID-19 advice, but there was still a strong theme of low awareness in the data:

I think I've actually become aware of it [NHS 111 online] since COVID because the testing of COVID has been pushed in, to 111, rather than GPs doing it. That's when I became a bit more aware of the different options of 111, ... I can't say I have ever heard reception signpost 111, I have heard them signpost for sick notes, but they tend to say .gov.uk [website] rather than 111. Thinking about it I've never heard reception talk about [NHS 111 online], and we do hear reception because when we do the triage we sit in the same room together.

(PC06, GP)

One source of confusion, which some interviewees also commented on, stemmed from the use of the generic term '111' to refer to both the telephone and the online services. Interviewees felt that patients and the public did not easily distinguish between these services:

People don't really clarify, if it's 111 they say they've either spoken to somebody, to somebody at 111, they don't necessarily say they have been online on 111, ...usually [when] they tell you they'll been online [to look up symptoms] they'll say they've been Googling it.

(ED15, ED doctor)

[patients] would say they had consulted 111 online. Then my own confusion was have they spoken to them on the phone or had they gone to NHS Direct [the telephone

service that predated NHS 111], you know the website you can use for looking up their symptoms and stuff.

(ED18, ED nurse)

Staff too struggled to differentiate 111 online from the telephone service. Language and naming play a key role in social marking: naming simultaneously constructs and foregrounds and allows us to distinguish a 'specialized' form of a given phenomenon (Brekhus, 1998, p. 35). The failure of so many interviewees to notice NHS 111 online created a collective 'unmarking' of the service in their accounts. NHS 111 online was indistinct, undifferentiated and unarticulated. It was made invisible. It was, as John Cooper Clarke in his poem quoted at the beginning of this article, would have it, 'nothing'.

Encouraged by our reading of Scott and Brekhus, we began to explore the reasons for the 'non-presence' of NHS 111 online in our data. This led us, perhaps inevitably, back to Garfinkel's early work (1949, 1967), which examined how marginalised categories (of race and transgender) were created, sustained and sometimes erased by social and interactional practices. Coding the data, we saw that NHS 111 online was just one of a large number of digital health technologies discussed in the interviews. Interviewees described so many different digital tools and online services that they could not 'see' or distinguish NHS 111 online. We began to group and explore these data under the heading of 'the crowded digital field'. The next section of our article examines this field.

THE CROWDED DIGITAL FIELD

Our interviewees described many different digital technologies that they encountered and/or signposted patients to in their everyday work at the frontline of primary, urgent and emergency care delivery. Ubiquitous social media sites, including Facebook and web browsers (notably Google) were frequently mentioned, alongside a range of different UK government websites. Charity websites were also identified as providing targeted health advice, for example, the *mydiabetes* resource for people with diabetes or the pages that the national charity Mind provides for people with mental health problems.

Staff working in NHS health-care settings also had to contend with an array of eHealth record systems, databases, platforms and software. These were named and/or commented on frequently in the interviews. The pandemic had added to this crowded field: there were new COVID-19-related websites, portals and digital systems. Some interviewees were aware of these new COVID-19 services, for example, a GP working in an ED setting (ED07) named the phone number (119) used for COVID-19 advice; others mentioned the COVID-19 online service, but they did not always associate this with NHS 111 online (initially NHS Digital created a dedicated COVID-19 url, but this later merged back into the main 111 online service). Only one interviewee referred to the NHS App (available from late 2018) and the separate NHS COVID-19 App used for contact tracing, venue check in, COVID-19 symptom and test reporting and community alerts. Interestingly, despite using these himself, this interviewee remained confused about the relationship between the NHS App and NHS 111 online (the NHS App can be used to access the NHS 111 online site via a click through link):

I have the other NHS App on my phone. ... 111 is actually a website rather than an app? It's easier for me to have the App on my phone because I've got the NHS

COVID-19 checker as well ... but you see 111 isn't actually an App is it? It's a website rather than an App.

(PC27, Nurse)

A number of alternative triage and assessment systems were highlighted as core to the delivery of primary care, and these overshadowed or obscured NHS 111 online. Commercially developed and marketed eConsultation systems, including eConsult (supplied by eConsult Health Limited) and askmyGP (supplied by GP Access Ltd), duplicated much of the functionality of NHS 111 online. These systems typically ask patients to complete an asynchronous web-based form for review by practice staff who then triage and prioritise dispositions; but several eConsultation systems also provide symptom checkers, signposting to self-care and pharmacy advice and/or local self-referral options, similar to NHS 111 online. eConsultation systems also offered additional facilities such as hyperlinks that allowed the ordering of repeat prescriptions or gave access to medical records, all functions which NHS 111 online does not offer. Interestingly, when we checked primary care websites, several of the eConsultation systems in use advertised the NHS 111 telephone service (with a colourful advert depicting a telephone and the 111 number) and some provided a hyperlink to the NHS 111 online service and/or instructions on how to call the 111 telephone service out of hours (as we will show later, this resulted in some circularity in patient journeys around the health-care system). However, our interviewees seldom mentioned this placement of NHS 111 within 'their' eConsultation systems.

Prior to the pandemic, the use of eConsultation systems was patchy and low in some areas (Banks et al., 2018; Brant et al., 2016), but the COVID-19 push to remote delivery boosted their use:

COVID really offered us a massive opportunity to clear the diaries... we said, let's really make a change here...now everything comes in through eConsult if we can.

(PC13, GP)

we are guiding the patients to a specific email address where they can email us directly you know they can look at going on the [ask]MyGP App, so we have had quite a good uptake of that. Again there was resistance at first in the old school patients who wanted to ring up and ask for prescriptions but we have guided them to contact their pharmacy, they can do it direct for you... they are doing it a lot more now and I think a lot of it is through necessity because they can't come in.

(PC28, Care navigator)

Often interviewees contrasted positive features of 'their' practice-owned eConsultation systems with generic NHS 111 services, which they viewed more negatively:

We have a team of people who navigate that patient into the right appointment and 111 bypasses that. When we do see the patient, if it's a phone call, I have the eConsult in front of me, it's quite detailed, there's quite a lot on it and that's there in front of me. So that doesn't really happen with 111, basically they go to 111 and the patient just gets booked in, you know usually an on the day appointment with a 111 report which isn't as easy to read or as comprehensive as the eConsults.

(PC14, GP)

Scott (2018) writes about 'absent objects', that is, things that are lost or imagined. This resonated with our understanding of the invisibility of NHS 111 online. It seemed that NHS 111

online was lost in this crowded digital field. Scott draws on Goffman's dramaturgical analyses and his description of non-persons who support others' self-presentation but are themselves ignored (Goffman, 1959). Again, this resonated with our data about NHS 111 online. Goffman cites domestic servants as archetypes of this non-person role, and in our data, it seemed that NHS 111 online could be described as *something* rather than 'someone who is not there' (Goffman, 1959, pp. 150–151, emphasis added). Scott (2018) argues, in Weberian terms, that the absence of social phenomena is accomplished through social action (a view that resonates with Garfinkel's early work cited earlier). Our interviewee accounts suggested that NHS 111 online was sometimes rendered absent through what Scott would conceptualise as 'acts of omission': where, nothing is 'passively arrived at by default, through failures to act, inertia and unrealised potential' (p. 15). In primary care, eConsultation systems were more visible, more familiar and offered greater affordances (Hutchby, 2001) for the everyday work of general practice than NHS 111 online. In emergency care settings, the 111 First initiative, and the introduction of an accompanying record management software called EDDI to support this, obscured NHS 111 online. Despite earlier concerns that NHS 111 telephone services were 'over-triaging' and inflating demand for emergency care (Egan et al., 2020), these frontline staff did not see NHS 111 as a significant source of additional demand.

In both primary and emergency care, poor system interoperability exacerbated the passive erasure of NHS 111. Local software was more visible and viewed more favourably than NHS 111 online. NHS 111 was sometimes mentioned negatively in the context of the automated reports it provided. These reports were intended to transfer triage and assessment details from the NHS 111 service to the primary or urgent care setting but receiving staff characterised them as 'useless' and 'meaningless'. As one ED interviewee explained:

there will be something on the system that we print off that has come from 111... sometimes the information is very minimal. Sometimes the information hasn't always been accurate at all. I remember a patient came in ...and it was actually more involved than what the letter and 111 said it was, ... sometimes there isn't always information, at other times it's sketchy or inaccurate.

(ED19, Nurse)

Frontline clinical staff described repeating the triage process 'from the beginning' when they saw the patient, rather than using NHS 111 reports. This could be frustrating for patients who had already explained their symptoms online, sometimes using both the eConsultation system and NHS 111 online before being seen by a clinician.

We have described the invisibility of NHS 111 online in a crowded digital field. Now we turn our attention to the wider health service landscape for further clues about why NHS 111 online was invisible. The next section draws on the interview accounts, but also brings in analysis of policy documents and public facing health education information about the urgent and emergency care system to explore how the ever-changing health service terrain helps to render NHS 111 online invisible.

THE MUTABLE SERVICE LANDSCAPE

Policy documents and health education materials associated with NHS 111 provide imagined, often simplified conceptualisations and models of health care. Many of the documents we

identified include pictures and diagrams intended to map or represent patient pathways to urgent and emergency care. Urgent and emergency care pathways are presented in straightforward, linear terms: coloured boxes and labels identify services, which are arranged and placed sequentially, sometimes joined by arrows indicating the movement of an imagined patient towards appropriate care. Yet, at the sharp end of frontline care, as we will show, the work of sense-making and navigating pathways to care is done by 'real' health-care staff and patients, and this can look very different.

NHS 111 telephone services were implemented across England in 2013, replacing the NHS Direct nurse-led telephone service, which had been introduced in 1997. Both the telephone and online versions use a computerised clinical decision support system combined with a directory of services that can direct callers or users online to appropriate services or self-care advice. In the same year that NHS 111 telephone services were introduced, the Urgent and Emergency Care Review was published (NHS England, 2014, 2021). This was one of the first policy documents to describe the role of telephone services in accessing care and services. The review update consolidated a vision for integrated care and included a colourful pictorial representation of the urgent and emergency care system—the 'Keogh diagram' or 'Keogh triangle' named after the principal author of the review, Sir Bruce Keogh (see <https://www.nhs.uk/NHSEngland/keogh-review/Documents/uecreviewupdate.FV.pdf> Accessed 11/11/2022). This depicts 'in visual form, the shape and structure of the future urgent and emergency care system' (NHS England, 2021, p. 8) and features an inverted triangle with 'emergency department' at the tip and a range of blue-coloured primary and urgent care services in the larger top section of the triangle. This high-level NHS policy vision shows that patients can:

- use self-care, including accessing the NHS online (web-based) advice via the NHS Choices site (this has since transferred to the NHS.UK website),
- follow an emergency '999' (red) pathway to specialist emergency care (depicted in red), or
- use the new '111' telephone service (shown in blue) as a gateway to a range of non-hospital services 'close to home', namely general practice, pharmacy, paramedic and urgent care services.

The Review indicated that the transformation of services based on this policy vision would take three to five years, but even at the initial stage, the Keogh diagram conveyed an important message about the nascent NHS 111 telephone service. The strapline 'the smart call to make' and the diagram made it clear that care outside emergency hospital settings was the 'right place' for urgent non-life threatening health needs. The use of arrows and colour to separate emergency and urgent care reinforced ideas about appropriate care. This diagram was widely reproduced on websites (National Health Executive, 2015; NHS Sunderland CCG, 2016), in local government papers (Buckinghamshire County Council, 2014; Southampton City Council, 2021) and in academic research (including work by members of our research team (Turnbull et al., 2019).

While NHS 111 online did not feature in the original Keogh triangle, it appeared in many policy and public health documents that followed the Keogh review. We collected and examined visual representations of the urgent and emergency care system, particularly those aimed at patients and the public. Strikingly similar colours and imagery are used in many of these. A rainbow palette is used to colour boxes or columns depicting different health services and/or health needs. Red is always reserved for emergency, hospital-based services, orange, gold and yellow for intermediate services such as general practice and pharmacies and blue (often a triangle with the 111 number displayed) for patient/user-initiated triage and advice seeking. These adverts and health education materials feature on posters and websites, sometimes appearing on roadside

advertising hoardings or on the sides of buses. Alongside these infographics, public information campaigns and television adverts direct people to call 111 rather than 999 ‘when you need help fast but it is not an emergency’. Many such adverts were used in the pandemic, linked to ‘Protect the NHS’ messaging.

While there are advertisements for NHS 111 online, for example, an orange poster with the ‘Did you know NHS 111 is now available online? 30,000 people use it each week’ slogan next to a blue triangle containing the white 111 number, it is striking how often depictions of urgent and emergency care services do not name NHS 111 online. Many refer generically to ‘NHS 111’ or use imagery that suggests the telephone and online services are interchangeable. The NHS Digital website (NHS Digital, 2019) is one of the few sources that differentiates the online and telephone services. Buried in a section on the NHS England website ‘About NHS 111’, another important difference is noted, namely that the NHS 111 online service is intended for the assessment of people aged 5 and over only. Taken together, the policy documents, adverts and representations of the NHS urgent care landscape position a generic NHS 111 as a key part of the urgent and emergency care system, but the use of the ‘111’ shorthand, often accompanied by a graphic depicting a telephone, makes the telephone service much more visible than NHS 111 online. These images are further diluted by a wider service landscape that includes many different care and service providers.

Looking at the evolution of these representations over time, it becomes apparent that the names for services are unstable, adding to potential confusion. The most obvious is the morphing of the ‘NHS Choices’ website named in the Keogh review to ‘NHS Direct’ telephone services and then to NHS 111 over the decade since the review was published. Posters and information resources variously describe emergency services as ‘The Emergency Department’, ‘999 emergency services’, ‘Accident and Emergency (A & E)’ and ‘Casualty’. Primary and urgent care services depicted include ‘your GP’, ‘Minor injury units’, ‘Walk-in Centres’, ‘Urgent Care Centres (UCC)’, ‘Urgent Treatment Centres (UTC)’, ‘GP hubs’ and community pharmacies. Some names persist despite attempts to simplify them, for example, walk-in centres and minor injury units may be subsumed under the newer ‘urgent care centre’ banner. But even at the time of writing, many physical signs and websites continued to refer to older ‘brand’ names. This mutability, combined with the crowded digital field described earlier, made it difficult for us and our interviewees to clearly articulate the role and position of NHS 111 online in pathways to care. NHS 111 online was not only one of a number of digital technologies in use, it was ‘just another’ in a long and frequently changing list of places people might go to seek help.

We used the interviews to explore if and how NHS 111 online was implicated in patients’ pathways to care, and this confirmed our finding that the online service was largely invisible to frontline staff. Interviewees felt that patients were often confused about which service to use. While diagrams and posters positioned NHS 111 as a gateway to care, it seemed that each service was a potential triage and redirection point for those seeking urgent or emergency care. For example, patients attending urgent care centres were regularly assessed and re-directed to EDs when x-ray facilities were needed. Rather than the imagined linear paths to care, there were many circular triage journeys and loop-backs around the health-care system. As we noted earlier, several primary care eConsultation systems were linked to NHS 111, and patients who used these when the general practice was closed could be advised to contact NHS 111 online, only to find after completing the online algorithm that they should ‘seek GP advice’ meaning that they had to return to the eConsultation system to obtain an appointment. This farcical circularity was commented on by several interviewees and identified by them as a source of considerable frustration for patients. In one general practice, an interviewee explained that they had to ask reception

staff to call patients referred by NHS 111 to tell them to call back on a dedicated practice phone number to access assessment by a GP prior to being given an appointment or advice, adding to the burden on patients seeking help. Another example was illuminated by dentists and emergency care interviewees who explained that patients with emergency dental health needs were often sent by NHS 111 telephone services to the emergency department, only to be advised to find an emergency dentist, sometimes being explicitly told to 'use the web' to find this service (There is a helpful NHS 'find a dentist' website, but this is separate from NHS 111 online).

This confusing service landscape combined with the crowded digital field meant that NHS 111 online was invisible to frontline staff in primary, urgent and emergency care in the NHS. The final section of this article explores why this matters.

DISCUSSION

Scott's work on the sociology of nothing reminds us to attend to interactions that render things invisible and sustain non-identity. Her interactionist lens focuses on people's acts of dis-identification (e.g. the atheist who is identified as a non-believer, the shy person who does not participate in talk and is rendered invisible in conversation and those marked by absences or loss (the bereaved, the childless)). We wish to extend her observations to include the idea that NHS 111 online is rendered invisible to social actors due to the twin effects of a crowded digital field and an ever-changing service landscape. Following Scott's lead, we attempt to build on the earlier work by Brekhus (1998), who argued that the distinction between marked and unmarked, was 'heuristically valuable' and worthy of greater attention. Brekhus proposed that sociologists were ideally suited to challenge perceptions of the unmarked and his method for doing this was to encourage 'reverse marking' as a way to foreground or bring back into view the previously unmarked or invisible (Like Scott, Brekhus takes his exemplars from human interaction: for example, he gives a helpful analysis of the comedian Richard Pryor's 'reverse marking humour', foregrounding white racial stereotypes as a technique for highlighting the racism in racialized generalisations. Brekhus notes also that elsewhere, sociologists and social geographers have considered space as 'urban', and thus marked, and given far less attention to unmarked non-urban spaces).

Our analysis, which has described in detail the competing digital technologies and the confusing array of NHS services in NHS primary, urgent and emergency care, initially sought to understand and explain our finding that NHS 111 online was invisible to many frontline staff. In doing this, we have stumbled on a reverse marking of NHS 111 online. We have demarcated where NHS 111 online is not and the non-presence of this seemingly important health technology in the work of frontline NHS staff. Why does this matter?

On the one hand, the use of NHS 111 online and its sister telephone service continues to rise, fuelled by the shifts to remote care in the pandemic and the greater use of web technologies in everyday life. The push to 'digital-first' presses on, and NHS 111 online is a key plank in this policy. 111 First as a mode of access to emergency care remains in place, even as health services are being encouraged to return to pre-pandemic face-to-face care modalities. The national medical director for NHS England has endorsed NHS 111: 'By calling NHS 111 or using the online service for non-urgent health concerns, you can help us help you access the best care for your needs, quickly' (Craig, 2022). We might conclude that while remarkable, the invisibility of NHS 111 online is unproblematic. However, we suggest that this invisibility is worthy of being marked and discussed for two reasons.

Firstly, there is evidence that health-care innovations, in particular digital technologies, often fail because people do not do the work needed to keep them 'in play' (Nicolini, 2006; Trupia et al., 2021). NHS 111 online's lack of visibility, especially the way that it is overshadowed and obscured by competing technologies such as eConsultation systems, may mean that it will be gradually surpassed by other technologies. The role of the private sector in developing, marketing and supporting rival systems is worth noting here. NHS 111 online and its telephone counterpart and the decision support software it uses are developed and owned by the NHS (they are part of the NHS Digital infrastructure). eConsultation systems are owned by private companies, which may have resources and incentives (including the use of medical detailing (Abraham, 2010)) to ensure that their 'products' win in marketplace competition. Invisibility means that NHS 111 online may be positioned as an 'also ran' rather than a frontrunner in digital health service provision. Trupia et al. (2021) have highlighted the importance of the invisible work done by users that ensures the success (or failure) of digital health innovations. It is already clear from our interviews that frontline primary care staff are more familiar with and may prefer 'their' local eConsultation systems, and they are less likely to signpost patients to NHS 111 online. If the technology is invisible, these actors will not be engaged and the work of normalisation and embedding will be left undone. This echoes Scott's acts of omission; a 'no-thing' is made when people forget or fail to mark 'some-thing'.

Star and Strauss (1999) in their exploration of the development of computer technologies, also enrol the concept of invisible work. They note that invisibility can be a site for resistance: for example, servants and slaves may occasionally use non-presence in domestic spaces to resist objectification or engage in acts of sabotage to create autonomy and space for themselves. It is striking that so many of the staff and stakeholders we interviewed, at a time when there was a significant policy push towards NHS 111 online, claimed to know so little about it. Ignorance of NHS 111 online could be a form of resistance to top-down, externally imposed technology. The invisibility of NHS 111 online to frontline staff means that they cannot show patients and the public where NHS 111 could provide self-care advice or direction to 'appropriate' services. It may also prevent referrals to the services they provide. In the longer term, invisibility might mean that NHS 111 online 'fails'. From the perspective of private providers of eConsultation systems and the kinds of frontline staff we interviewed, this might not be seen as a bad outcome, but it would represent a significant waste of public investment in (yet another) digital technology. At the present time, it seems that NHS 111 online is used, despite a lack of engagement by frontline staff. Nonetheless, the 'top' of the NHS (i.e. NHS Digital and high-level policymakers) might want to be aware of this potential threat to its longer term viability.

A more pressing, present concern focusses on health service users. We did not speak to patients and service users for this part of our study (although we did separately complete a large survey of eHealth literacy). However, we suggest that the invisibility of NHS 111 online to frontline staff and stakeholders implicates patients and service users in doing more of the work required to manage their care needs. As Illich (1981) and Oudshoorn (2008) point out, technology seldom removes work, it merely redistributes it. The frustrating circular patient journeys from NHS 111 to eConsult and back again and the repeated re-direction to alternative services, as described by our interviewees, require effort, often by people already incapacitated by illness. The additional hurdle of navigating 111 online and/or 111 First must be jumped in order to access emergency care, and this is new, additional work for those seeking such care. The use of NHS 111 online requires not only knowledge and understanding of symptoms but also additional digital literacy skills; this is another burden and site of inequality. The array of different technologies and the confusing landscape of services push sense-making work onto patients. Oudshoorn points out that 'insufficient attention to this invisible work has major consequences

for patients because it can induce selective use and non-use.' (2008, p. 284). The invisibility of NHS 111 online may mean that all the work done by patients goes unnoticed. This could also jeopardise the longer-term success of the service, and again, policymakers pushing 'digital-first' neglect these forms of work and their impacts at their peril.

Strengths and limitations

Our analysis has explored the apparently remarkable invisibility of NHS 111 online in the wider landscape of UK health care. To our knowledge, this is the first use of Scott's elaboration of the sociology of nothing to explain the invisibility of a digital health technology, and we hope this is a useful extension of her work. We were able, despite the pandemic restrictions, to conduct a large number of qualitative interviews, but we are of course missing qualitative observational data that could corroborate and enrich these.

CONCLUSIONS

A crowded digital field, littered with competing technologies, and the confusion created by a mutable health service landscape help to render NHS 111 online invisible. NHS 111 online is just one of many digital technologies enrolled in primary, urgent and emergency care. It is poorly understood, and frontline staff and stakeholders delivering care appear unaware of its existence. It is a gateway to care and a service provider, yet it struggles to be visible. The coincidence of undertaking this research during the COVID-19 pandemic, when there was a strong push to remote, digital health services, makes this invisibility all the more remarkable. Scott's theorising about the sociology of nothing may be usefully enrolled to explain this invisibility. We concur with Scott that the unmarked is worthy of sociological attention and have attempted to extend her work to encompass 'non-things'. The invisibility of NHS 111 online matters because it may threaten the longer-term sustainability of this digital technology and service. Perhaps more importantly, if we can 're-mark' or notice 'nothings', we can begin to trace where the work of health care falls, and in this case, as in so many others, it seems that it is patients, not technology, who are picking up the tab.

AUTHOR CONTRIBUTIONS

Catherine Pope: Conceptualization (Lead); Data curation (Equal); Formal analysis (Lead); Funding acquisition (Lead); Investigation (Equal); Methodology (Equal); Project administration (Lead); Resources (Lead); Software (Supporting); Supervision (Lead); Validation (Lead); Visualization (Supporting); Writing – original draft (Lead); Writing – review & editing (Lead). **Jennifer MacLellan:** Conceptualization (Supporting); Data curation (Equal); Formal analysis (Supporting); Funding acquisition (Supporting); Investigation (Equal); Methodology (Equal); Project administration (Supporting); Resources (Supporting); Software (Supporting); Supervision (Supporting); Validation (Supporting); Visualization (Supporting); Writing – original draft (Supporting); Writing – review & editing (Supporting). **Jane Prichard:** Conceptualization (Supporting); Data curation (Supporting); Formal analysis (Supporting); Funding acquisition (Supporting); Investigation (Supporting); Methodology (Supporting); Project administration (Supporting); Resources (Supporting); Software (Supporting); Supervision (Supporting); Validation (Supporting); Visualization (Supporting); Writing – original draft (Supporting); Writing –

review & editing (Supporting). **Joanne Turnbull**: Conceptualization (Supporting); Data curation (Equal); Formal analysis (Supporting); Funding acquisition (Supporting); Investigation (Equal); Methodology (Equal); Project administration (Supporting); Resources (Supporting); Software (Supporting); Supervision (Supporting); Validation (Supporting); Visualization (Supporting); Writing – original draft (Supporting); Writing – review & editing (Supporting).

ACKNOWLEDGEMENTS

We would like to thank the research participants and organisations that supported the study. We are very grateful to our wider research team and our PPI lead, David Browne, and PPI members from Groundswell, Sheffield Deep End and to the PPI members on our Steering Group for their input on the project. The anonymous reviewers helped us polish the manuscript, and we thank them for taking the time to do this vital but often hidden part of the publication process. Last, but not least, we thank Anne Rogers, Sue Ziebland and Sharon Dixon for believing that nothing was something. This study was funded by the NIHR HS&DR Programme (project number 127590) and will be published in full in Health and Social Care Delivery Research. Further information is available at <https://fundingawards.nihr.ac.uk/award/NIHR127590>. Catherine Pope holds an NIHR Senior Investigator award (202396). This paper reports independent research commissioned by the National Institute for Health and Care Research (NIHR). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

DATA AVAILABILITY STATEMENT

Interview data may be made available on request to the lead author, access limited due to privacy/ethical restrictions.

ETHICS STATEMENT

Ethics approval was received from the London Stanmore Research Ethics Committee (reference 20/LO/0294). All participants gave informed consent before taking part.

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How to cite this article: Pope, C., MacLellan, J., Prichard, J., & Turnbull, J. (2022). The remarkable invisibility of NHS 111 online. *Sociology of Health & Illness*, 1–19. <https://doi.org/10.1111/1467-9566.13591>