Digital first primary care for those with multiple long-term conditions: The views of patients, carers and health professionals

Study Protocol

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Summary

Background

General practices across England are facing the burden of rising patient demand alongside an increase in the complexity of the care patients require, an increase in work transferred to GPs from secondary care and challenges in recruiting and retaining GPs. Greater use of digital technologies by primary care has been advocated as a way of mitigating some of these challenges and improve efficiency in primary care. Digital first primary care is one aspect of this. Digital first primary care is when a patient's first contact for the arrangement of a GP consultation is via digital mechanisms, rather than face-to-face. The use of Digital First Primary Care has been increasing in recent years and the COVID-19 pandemic has expedited this immensely, with NHS England advising all general practices to book appointments online and hold remote consultations (via telephone or video, for example).

Several studies have examined the use of digital approaches in primary care in recent years, mainly focused on understanding the types of platforms used and how, the impact of this on the practice and the views of practice staff of using digital approaches. Digital first services have, to date, been used mainly for patients with urgent problems, typically in 'on the day' appointments, and there is little evidence about how well they can address more complex patients' needs, such as those living with multiple long-term conditions. This project will examine the views of health professionals, patients with multiple long-term conditions and their carers about Digital First Primary Care.

Aims

Based on the gaps we have identified in the existing research, our rapid evaluation will answer research questions concerned with understanding the impact of Digital First services in primary care for patients living with multiple long-term conditions. In particular, we will explore how Digital First Primary Care is experienced by patients with long term conditions, their carers and primary health professionals.

Evaluation questions

To address our overall aim, the study seeks to answer the following evaluation questions:

- **Question 1**: What is the experience of Digital First Primary Care for patients with multiple long-term conditions, their carers and health professionals, both before and during the COVID-19 pandemic?
- **Question 2**: What is the impact of Digital First Primary Care on the nature of consultations for carers/patients with multiple long-term conditions and health professionals, which includes aspects such as the health professional(s) spoken to, timeliness of care, and continuity of care?
- **Question 3:** What, if any, are the advantages or disadvantages of Digital First Primary Care for patients with multiple long-term conditions, and their carers?
- **Question 4:** What lessons can be learnt from staff, patients' and carers' views for future service delivery for patients with multiple long-term conditions in primary care? Are there individual groups within the community where there is particular learning for future service provision?

Design and methods

Our evaluation comprises three distinct work packages (WP):

- WP1: Locating the study within the wider context, engaging with literature, as well as co-designing the study approach and research questions with service users.
- WP2: Interviews with patients/carers of those with multiple long-term conditions who have experienced Digital First Primary Care and health professionals.
- WP3: Analysis of data, generation of themes, and testing findings with service users.
- WP4: Synthesis, reporting and dissemination.

Dissemination and outputs

We anticipate disseminating the findings of this evaluation project in several ways, including:

- A final report submitted to the National Institute for Health Research, Health Services and Delivery Research Programme (NIHR HS&DR) to be published in the NIHR Journals Library.
- A joint short report, with the Improvement Analytics team at the Health Foundation, synthesising their quantitative and our qualitative work in this area.
- A range of slide packs to share findings with a range of key audiences including primary care clinicians, practice managers, commissioners, policymakers and patients/carers.
- Web-based resources such as a link to the full report, blogs (written independently and/or in collaboration with NHS/NHS-related organisations) to highlight key findings to non-experts as well as more expert audiences. Given the focus on patient experience, we will focus particularly on dissemination to patients, carers and organisations which represent patients and carers. We will work closely with our partner, National Voices, and their membership community to do this.
- Videos or podcasts of research team members and others (e.g. members of the BRACE patient and public involvement (PPI) and health and care panels) reflecting on the evaluation and its conclusions. These will be made accessible to a range of audiences (e.g. we will use subtitles for videos).
- Publication of an article in primary care professional press such as Pulse, Health Services Journal, or GP Online.
- Publication of the findings in high quality, peer-reviewed, academic journals.
- Oral and/or poster conference presentations at the British Journal of General Practice (BJGP) conference, the Society for Academic Primary Care (SAPC) conference and Health Services Research UK (which could be co-presented with the PPI reviewers for this project). We will also seek to present the work at other conferences attended by patients and patient groups.
- Disseminating findings through BRACE networks, drawing on the expertise and assistance of our PPI collaborators, health and care panel[1] (particularly members with communication/ journalism expertise and those with primary care knowledge) and steering group members who are involved with the project and the BRACE Centre. We will also seek the guidance of Richard Kirby (NHS Chief Executive), Charlotte Augst (Chief Executive of National Voices) who are both BRACE co-investigators and the BRACE Steering Group to understand how best to communicate findings with NHS managers, staff, patients and carers.

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[1] The BRACE Health and Care Panel are a diverse group of people who support BRACE research. Their roles include commenting on protocols, attending dissemination events and workshops, and informing our prioritisation of research ideas and plans. They have varied backgrounds and include health professionals, members of charitable organisations, NHS managers, social care colleagues, and patients.

Study timeline

The study will take place over 6 months, assuming timely access to case study sites and securing the necessary ethical approvals.

Funding

BRACE is funded by the NIHR Health Services and Delivery Research (HS&DR) programme (HSDR16/138/31).

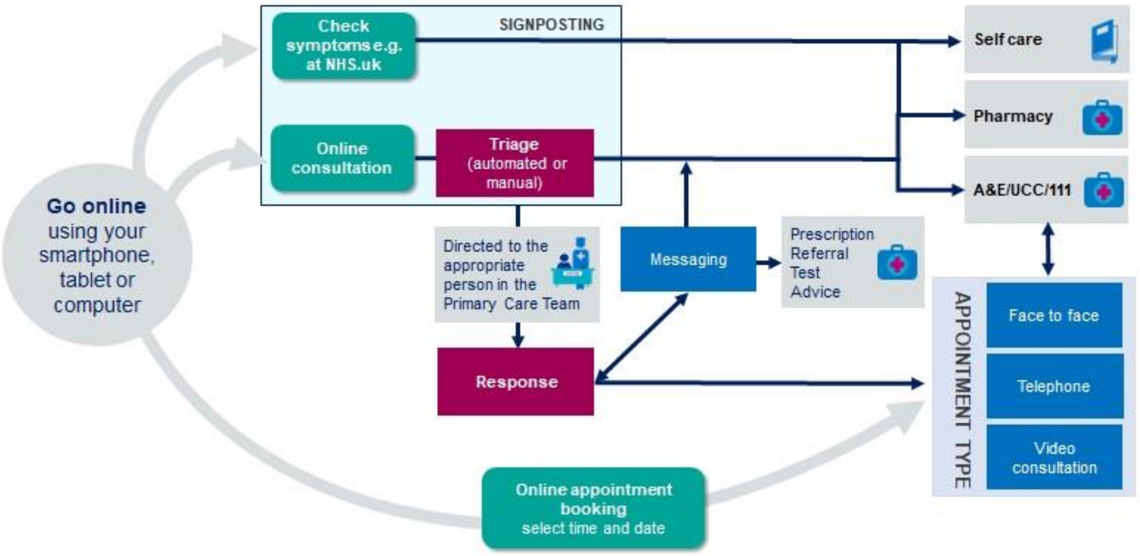
Background and rationale

What is Digital First Primary Care?

Digital first primary care is when a patient's first contact for the arrangement of a general practitioner (GP) consultation is via a digital route rather than a face-to-face interaction. Figure 1, produced by NHS England, outlines the various patient pathways, from when a patient first contacts their practice digitally to the holding of a consultation (NHS England, n.d.). The design of Digital First Primary Care platforms varies by commercial provider, although the main principles are the same. The patient inputs their symptoms and concerns through a digital platform, such as a computer or smartphone, either via a set of questions within a digital algorithm or through a free text submission. The patient is then given an appropriate response which could be from a staff member within the practice or automatically generated by the algorithm. This response could, for example, offer guidance for self-care, advice to attend an accident and emergency service (if the problem is deemed to be a serious one that cannot wait) or a suggested telephone, video or face to face appointment with a GP or other member of the practice team. Most models enable swift responses from practices back to patients, usually on the same day, and if a consultation is required, this is usually on the same day too. Consultations are often by telephone or video rather than face to face.

These approaches have been advocated by NHS England & Improvement as it is believed they enable clinicians to prioritise the care of patients in the most need (Bakhai, Croney, Waller, Henshall, & Felstead, 2020).

Figure 1: Digital First Primary Care pathways, taken from NHS England (n.d.)



Policy background

General practices throughout England are struggling with rising demand from patients with complex health needs, more work being transferred from secondary to primary care, and increasing difficulty in recruiting and retaining GPs (NHS England, 2016; Health Education England, 2015). The General Practice Forward View (2016) aimed to help GP practices reduce and better manage their workload and the increased use of digital technologies was advocated (NHS England, 2016). The digital ambition for primary care was further endorsed in the NHS Long Term Plan (2019), which set out a target that within the next 10 years, the NHS will offer a 'Digital First' option in primary care for most patients (NHS, 2019), with the aim that this would enable 'longer and richer face-to-face consultations with clinicians where patients want or need it'. The General Medical Services contract reflects this policy shift towards digital approaches, having included a requirement that practices should ensure that all patients have the right to online consultations by April 2020 and video consultations by April 2021 (NHS England, 2016).

Despite the policy shift towards digital approaches, most GP surgeries were not operating in this way in early 2020, with analysis of primary care data suggesting that 13-15% of consultations were conducted remotely in January 2020 (Watt, Firth, Fisher, Thorlby, & Kelly, 2020). However, the COVID-19 pandemic has seen a rapid change of mode of service delivery in general practice, with all GP surgeries now offering some form of non-face to face consultation.

The impact of COVID-19 on Digital First Primary Care

Scoping for this project began in July 2019 at which point uptake of digital primary care was modest across England. In response to the COVID-19 outbreak, general practice has had to quickly adapt ways of working to reduce footfall in GP surgeries, protecting patients and staff from infection (Clarke, Pariza, & Wolters, 2020). In March 2020, all practices were written to by NHS England informing them that '*all practices are now being advised to change face-to-face appointments booked online to triage appointments via telephone or video*' (NHS England and NHS Improvement, 2020). In addition, in a speech delivered in late July 2020, the Health and Social Care Secretary, Matt Hancock, specified that '*from now on, all consultations should be teleconsultations unless there's a compelling clinical reason not to'* (Department of Health and Social Care and The Rt Hon Matt Hancock MP, 2020). NHS Digital has also provided guidance to practices about approved online consultation suppliers that can be used immediately, to enable practices to swiftly implement digital approaches.

There has been a dramatic increase in the adoption of Digital First approaches in primary care in response to COVID-19. In only a few weeks, most GP practices in England have enabled the use of video consulting and the majority are implementing digital approaches. Analysis by The Health Foundation suggests that remote consultations increased from less than 20% to over 50-60% of all consultations at the peak of the first national lockdown (Watt, Firth, Fisher, Thorlby, & Kelly, 2020).

When looking at specific types of digital approaches, evidence suggests that the use of online messaging increased from 23% before the pandemic to 40% since the pandemic. In addition, the use of video by patients to communicate with the GP surgery increased 50-fold compared to before the pandemic, although compared to other forms of digital communication, the use of video is still low at only 0.5% of consultations.

While some of these changes may only be temporary, in place to support primary care to be able to continue providing patient care during the pandemic, it is likely that Digital First Primary Care approaches will be used at a greater extent than before the pandemic. In addition, at a keynote speech, Dr Nikki Kanani, Medical Director of Primary Care for NHS England and NHS Improvement, encouraged primary care to retain the digital approaches that have been found to provide benefit during COVID-19 (Downey, 2020).

Literature of existing Digital First Primary Care in an English primary care context

Several studies have been conducted on Digital First Primary Care and some key examples are outlined here.

The ESTEEM trial (Campbell, et al., 2014) examined telephone triage for same-day requests for a consultation from patients to GP practices and found that the introduction of telephone triage was associated with an increase in the number of primary care contacts in the 28 days post-consultation, with similar costs to those of usual care. The telephone-first evaluation of telephone triage in primary care reported that it did not demonstrate a reduction in secondary care use (Newbould, et al., 2017). The same study also noted impacts on surgery staff and challenges for some patients with the use of the approach (Ball, et al., 2018). Since this study was conducted, commercial companies have adapted the 'telephone first' approach to a 'Digital First' approach, where contact with the surgery is made by digital routes by using, for example, computers or smartphones, rather than by telephone. The use of digital approaches in primary care builds on telephone triage in general practice, with commercial companies adapting the model to enable symptoms to be input by the patient online rather than given verbally over the telephone to a receptionist.

A mixed-methods evaluation of the provider eConsult concluded that the approach offered a safe additional and alternative method for accessing GP care. Patients were largely positive about the system, particularly being able to use a different method of communication with the practice. Practice staff were also positive about the system, felt confident in patients using it and felt it could complement existing services, although there were some concerns raised about integrating eConsult with current processes. There was also some uncertainty as to whether eConsult had promoted self-help amongst patients and assessing the effectiveness of the system was challenging due to low uptake across the practices included in the evaluation, as well as variation in what practices expected of eConsult (Cowie, Calveley, Bowers, & Bowers, 2018). Similarly, a further study, which looked at the implementation of eConsult in 36 practices in South West England found different expectations between patients and staff about how e-consultations should be used. This study found that most e-consultations resulted in phone (32%) or face-to-face appointments (38%), which GPs felt duplicated their workload (Edwards, et al., 2017).

A 2019 rapid evidence review of Digital First Primary Care found that uptake of digital approaches to engaging with primary care was low (Rodgers, Raine, Thomas, Harden, & Eastwood, 2019). Reason for low uptake was unclear but could be due to GPs not always using alternative approaches to consultations, patients not being aware of the digital approach (or preferring a face to face appointment) and/or challenges with implementing digital approaches in the practice. While there was some evidence that Digital First services could reduce the burden on primary care, this differed across studies depending on the outcomes of interest and the type of digital tool used. Little evidence was found by the authors of the impact on the quality of care, service delivery, benefits/ drawbacks for patients and financial costs/savings associated with Digital First Primary Care.

Recent work has also been conducted to explore the rapid changes in primary care consultations seen during the COVID-19 pandemic. A project run by the Q Initiative's Insight and Evaluation team (at the Health Foundation) into video consultations found multiple benefits to video consultations, including patient and clinician satisfaction and acceptance (Scott, 2020). However, findings have also indicated that video consultations may heighten inequalities. The author calls for more research to understand

and share the impact of using video on quality of care and inequalities in terms of healthcare access (Scott, 2020).

The Doctor will Zoom you Now, a qualitative study exploring patient experience of the greater use of remote and virtual consultations during the pandemic found that one of the key issues raised by patients is the importance of respecting their time and understanding how appointments fit in with their lives (Healthwatch, 2020). In general, remote consultations were seen as more convenient for some patients as there was no need to take long periods out of their day or reserve time for travel and waiting. Patients also felt that receiving information on the consultation in advance was important so they knew what to expect. They also valued having the choice of which platform they could use (e.g. phone, video, email, in-person if needed), depending on their care needs.

Finally, a report published by the Patients' Association aimed to explore how patients experienced the COVID-19 pandemic (The Patients Association, 2020). They found mixed opinions about the usefulness of remote consultations that took place by phone or online. Patients reported wanting face-to-face appointments and noted that continuity of care was more challenging with remote consultations. Others reported preferences for virtual consultations, to accommodate them if they lived further away from their practice or preferred quick online access to services.

Digital first primary care for those with long-term conditions

Few studies have been conducted that include an exploration of how Digital First Primary Care has been used by patients with long-term health conditions. Two studies that did include an exploration of this are briefly outlined here.

A 2018 study reporting on alternatives to face-to-face consultations found that patients with multiple long-term conditions showed higher rates of accessing alternatives to face-to-face consultations (although this group has a higher use of any type of consultation in general) than those without multiple long-term conditions (Atherton, et al., 2018).

An evaluation was conducted on Babylon GP at hand (YHEC & IPSOS MORI, 2019), a primary care practice in North West London that offers Digital First approaches to primary care, primarily through the use of a smartphone app and video consultations. The evaluation found that users were likely to be healthier and that patients with more complex needs were less likely to use the service (with only 29% of users reporting they had a long-term condition). This was speculated by the authors to be due to a cautionary note sent to potential users stating that those needing more frequent face-to-face appointments would need to travel to a clinic. Patients with long-term conditions who did use Babylon reported good experiences, such as the ease and speed of access, in line with other types of users. Experiences varied by the type of long-term condition, with patients with physical mobility problems reporting worse experiences and those with breathing problems reporting better experiences. This study is one of the largest studies of digital approaches to general practice, but it should be noted that patients registered with the Babylon GP at Hand service were younger and potentially more affluent than at an average practice in London or nationally (YHEC & IPSOS MORI, 2019). They were also healthier than patients at other practices in the clinical commissioning group (local NHS area). These factors indicate that the findings from the evaluation may not be generalisable to the wider general practice population.

Why is this research important and needed now?

While much research has been conducted on Digital First Primary Care, little has focused on exploring, in-depth, the experience of those with multiple long-term conditions and their carers. Investigating the use of Digital First in primary care specifically for patients with long-term conditions is particularly important given the increase in the number of patients with multiple long-term conditions and the need to meet the demand for primary care more sustainably (Department of health, 2012). Understanding the use and perceptions of Digital First Primary Care by those with multiple long-term conditions is a knowledge gap, this research helps to fill this. Since the pandemic there has been increased interest in and use of Digital First Primary Care which requires further investigation in terms of how this is experienced by people living with long-term conditions and their carers. The principal investigator of this study has strong connections with other researchers in this field and is aware of other ongoing research projects, none of which, to her knowledge, focus on this particular patient and carer group.

Who is the research aimed at?

The evaluation findings will be of relevance to national and local NHS decision-makers including GP practices, clinical commissioning groups, Sustainability and Transformation Partnerships (STPs), Integrated Care Systems (ICS'), and health boards across the UK. In particular, findings will be relevant to NHS Digital, NHS England and Improvement's Digital First Primary Care research and evaluation team, the Department of Health and Social Care (DHSC), the British Medical Association (BMA), and the Royal College of General Practitioners (RCGP). They will also be of interest to patients, carers and the public, including GP patient participation groups, Citizen Panels and local and national patient health charities. We also believe the findings will be relevant to an international audience.

How does the research fit with other BRACE work in this area?

In addition to this project, BRACE also has a proposed project 'the impact of telephone triage in primary care on inequalities experienced by people with multiple morbidities: a quantitative evaluation'. Although both telephone triage and the use of Digital First approaches to primary care represent new ways of working for primary care, they are two quite different approaches.

To an extent, telephone triage is the forerunner of Digital First, with (usually) a receptionist handling patient details before an initial clinical consultation, whereas in Digital First approaches, these details are usually inputted directly into the general practice online system by the patient. The subsequent consultation for telephone triage would then either be by telephone or face-to-face and for Digital First by telephone, video or face-to-face.

Methodologically, both projects use very different approaches, quantitative secondary data analysis for the telephone triage study, and qualitative primary data collection for Digital First Primary Care. In addition, these two evaluations are designed to give distinct and complementary insights into different areas of this service innovation. The telephone triage analysis, although focusing on a more established (and slightly narrower) innovation, will provide a formal inequalities impact analysis for people with multiple long-term conditions, which is not usually possible in rapid evaluation. The Digital First Primary Care project will provide insight into the experience of patients with multiple long-term conditions and the professionals and carers who care for them. The insights from both projects will inform future service delivery in general practice.

Project plan

The following section outlines the proposed research methodology.

Aim

This project aims to understand the experiences of those with multiple long-term conditions of Digital First Primary Care from the perspectives of patients, their carers and healthcare professionals.

Research questions

To address our overall aim, the study seeks to answer the following evaluation questions:

- **Question 1**: What is the experience of Digital First Primary Care for patients with multiple long-term conditions, their carers and health professionals, both before and during the COVID-19 pandemic?

- **Question 2**: What is the impact of Digital First Primary Care on the nature of consultations for carers/patients with multiple long-term conditions and health professionals, which includes aspects such as the health professional(s) spoken to, timeliness of care, and continuity of care?

- **Question 3:** What if any, are the advantages or disadvantages of Digital First Primary Care for patients with multiple long-term conditions, and their carers?

- **Question 4:** What lessons can be learnt from patients', carers' and staff views for future service delivery for patients with multiple long-term conditions in primary care? Are there individual groups within the community where there is particular learning for future service provision?

Research design and methodology

Our evaluation will be comprised of four distinct work packages (WP) (detailed in Table 1):

- WP1: Locating the study within the wider context, engaging with literature, as well as co-designing the study approach and research questions with service users.
- WP2: Interviews with patients/carers of those with multiple long-term conditions who have experienced Digital First Primary Care and health professionals.
- WP3: Analysis of data, generation of themes, and testing findings with service users.
- WP4: Synthesis, reporting and dissemination.

Table 1. Summary of work packages and how research questions will be addressed

Work package (WP)	Description	Research questions
WP1: Locating the study within the wider context, engaging with literature, as well as co-designing the study approach and research questions with service users	To date, the team have completed a workshop with service users (members of the BRACE PPI group) to shape research questions (September 2020) and engaged with relevant literature on the use of Digital First Primary Care services by patients with multiple long-term conditions. The team will have further workshops with service users to co-design research tools and continue to engage with relevant literature during data collection, analysis, and write up of findings.	RQ1-4
WP2: Interviews with patients/carers who have experienced Digital First Primary Care and health professionals	To undertake interviews with patients living with multiple long-term conditions (and their carers) to ascertain their experiences of Digital First Primary Care. To conduct interviews with health professionals involved in the delivery of Digital First Primary Care and	RQ1-4
WP3: Analysis of data, generation of themes and testing findings with patients and carers	Analyse data from WP1 and 2 and discuss key findings with service users and carers.	RQ4
WP4: Synthesis, reporting and dissemination	Synthesis and analysis across WP1-3 and with other research on Digital First Primary Care, followed by reporting and dissemination.	RQ4

Focus on patients with multiple long-term conditions

Our work will focus on those living with multiple long-term conditions, forming part of the BRACE overarching analysis of service innovations and how they are experienced by and impact on people living with multiple long-term conditions. We use the definition from the National Institute for Health and Care Excellence which defines multimorbidity as ‘the presence of two or more long-term health conditions, which can include:

- Defined physical and mental health conditions such as diabetes or schizophrenia
- Ongoing conditions such as learning disability
- Symptom complexes such as frailty or chronic pain
- Sensory impairment such as sight or hearing loss
- Alcohol and substance misuse (NICE, 2016).’

This will also include a consideration of how any co-morbidities a patient with multiple long-term conditions may influence their use and experience of Digital First Primary Care (e.g. fatigue caused by the health condition or treatment side effects).

Methodology

The methods used in each of the evaluation work packages are described below.

WP1: Locating the study within the wider context and co-designing the study design and research questions with service users

WP1 aims to mobilise the study, locate it within existing research and literature on the use of Digital First Primary Care by patients with multiple long-term conditions and work with service users to co-design the study design and research tools.

As part of the process of developing this protocol, the team have completed a workshop with service users (members of the BRACE PPI group) to shape research questions (September 2020) and engaged with relevant literature on the use of Digital First Primary Care services by patients with multiple long-term conditions. The team will have further workshops with service users to co-design research tools and continue to engage with relevant literature during data collection, analysis, and write up of findings.

Overview of the literature

As part of the scoping phase of the project and development of this protocol, the study team have engaged with relevant Digital First Primary Care literature to:

- Engage with evidence relating to the use of Digital First Primary Care by patients with multiple long-term conditions.
- Inform our study design, research questions, and methods.

In addition, the PI has strong relationships with researchers currently conducting studies in this area which has supported the identification of research evidence related to Digital First Primary Care. The team will continue to identify and engage with literature during key stages of the study (data collection, analysis, and write up) supplemented with ongoing dialogue with key experts in this field.

Patient feedback and input into project scoping and research tools

As part of our continued engagement with service users, the research team will further engage with members of the BRACE PPI panel to inform the design of the project, as well as to obtain feedback on the research tools, particularly patient-facing documentation e.g. patient information leaflets.

A workshop with five members of the health and care panel has already been conducted for this study on 10th September 2020. The workshop lasted for 1.5 hours and the PI outlined the proposed work for discussion by the group. As a result of the workshop, changes were made to the protocol including:

- An increase in the number of interviews to be conducted.
- Remuneration for GP surgeries for participation in the project to be included (as confirmed by NIHR Health Services and Delivery Research (HS&DR) leads).
- Consideration of access to digital technology (e.g. having devices but also having sufficient Wi-Fi signal) included in the project as well as the ability to use digital technology.
- Provision of Zoom platform for video interviews (the group felt this was the one most commonly used by patients).
- Including a question to health professionals regarding how they cater for patients who do not/cannot access digital approaches to primary care.

Two PPI workshop attendees will work with the project team throughout the project and have reviewed and commented on the protocol. These PPI members will also review information sheets and topic guides designed for patients and attend the workshop at the end of the project. The members are available for quick turnarounds for these inputs to ensure the project adheres to the timelines set out in the Project Management section.

Finally, a workshop will be held with the health and care panel towards the end of the project, when a draft set of results and emerging themes have been developed. See WP3 for further detail on this workshop.

Obtaining ethical approval

As part of WP1, we will seek appropriate governance and research ethical approval from the University of Birmingham (as the sponsor), NHS Health Research Authority (HRA) and local NHS Research and Development approval to recruit participants and collect data as appropriate. Further information about our approach to seeking governance approvals is detailed in the section “Ethical issues and approvals required”.

WP2: Interviews with patients, carers and staff

Here, we outline our proposed approach to recruiting and conducting interviews with patients/carers and staff who have experienced Digital First Primary Care.

Sampling and recruitment of general practices delivering Digital First Primary Care

Two commercial providers of Digital First Primary Care have agreed to participate in the study, and we will approach general practices who are offering Digital First Primary Care services by these providers. From the list of practices using these commercial providers, we will identify those that have been operating a Digital First approach for six months or more, to enable time for them to have become familiar with the system.

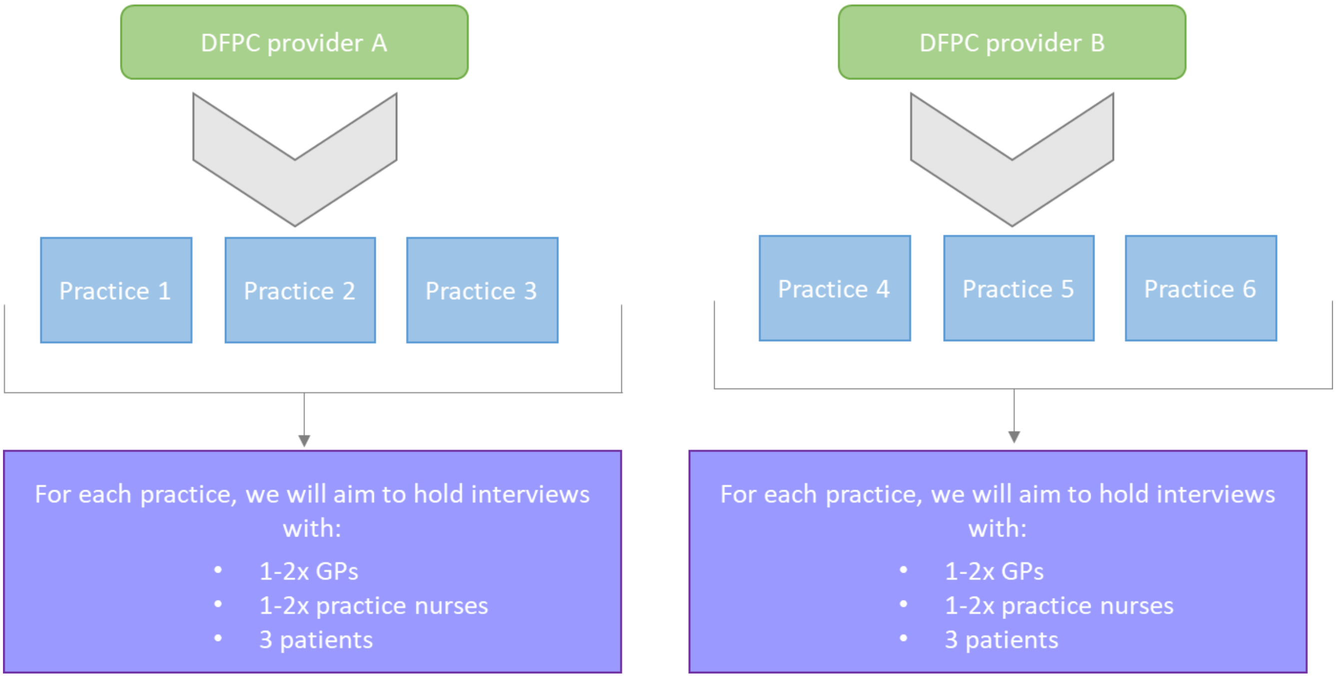
We will aim to use a maximum variation sampling strategy (Ritchie, Lewis, McNaughton Nicholls, & Ormston, 2003) to identify general practices, for example with varied list sizes, locations (urban or rural) and to include areas of high deprivation and with ethnic diversity. From this sample, the project team will seek to recruit six general practices, at least two of which will be located within areas of deprivation (based on Index of Multiple Deprivation scores) and ethnic diversity (based on Office of National Statistics Census data, 2011). The two commercial providers will provide a list of practices that meet our core criteria. Practices will be categorised as outlined above, in terms of characteristics of the area within which the practice is located.

The lead practice partner and Practice Manager will be approached by an emailed letter and invited to participate in the study. This will be followed by a telephone call to the practice by a member of the research team to discuss participation.

A summary of the practice recruitment and who will be interviewed is provided in In total, 35-42 interviews will be conducted across the 6 practices.

Figure 2 below. In total, 35-42 interviews will be conducted across the 6 practices.

Figure 2: Overview of proposed interviews



For each practice, we will aim to hold interviews with:

- 1-2x GPs
- 1-2x practice nurses
- 3 patients

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Sampling and recruitment of patients and carers

To identify patients with multiple long-term conditions, practices will be asked to run a search of patient records to identify patients. The research team will work with practices to refine their search depending on the clinical system used. The following inclusion criteria would be used:

- Aged 18 years and over;
- Living with at least two long-term health conditions (in accordance with NICE guidance); and
- Have accessed Digital First Primary Care services recently.

Practices will be requested to send invitations to up to 300 patients who meet the above search criteria. They will begin by inviting the first 300 patients who used the Digital First approach from the previous day the practice was open. If the number of patients who meet the inclusion criteria the previous day was less than 300, practices will be asked to include the patients from the previous days' consultations. If the number of patients seen the previous day exceeds 300 patients the practice will be asked to send letters to the first 300 patients only. A similar approach to this has been used by the principal investigator in a previous study, Telefirst, and we believe this to be the best way to identify a number of patients who meet the inclusion criteria. Following the search, the identified list of patients will be checked by a GP to exclude any patients who the GP considers should not take part in the study based on medical and/or well-being concerns. The following exclusion criteria will be applied:

- Patients under 18 years;
- Patients on palliative care pathways;
- Patients with severe mental health conditions (e.g. psychosis); and
- Patients deemed by the GP to be unable to take part in an interview due to their ill-health.

Patients will be sent a letter, containing a patient information leaflet and consent form, and invited to participate in a semi-structured interview with one member of the study team completed online (Zoom, MS Teams, Skype) or by telephone. The letter will also invite the patient's carer to participate in the interview alongside, or instead of the patient if the patient would prefer. The letter will include a reply slip (which can be filled out on paper or digitally) to be completed by the patient/carer. This will contain the following:

- The patient's name.
- The carer's name (if required).
- Their telephone number and email address.
- Agreement to participate in an interview – with the option to tick preference for telephone or video interview.
- A short series of questions asking them to identify:
    - Age group
    - Gender
    - Ethnic group
    - Long-term conditions
    - How confident they feel using digital technology (on a scale of 0-10).

The inclusion of questions on age, gender, ethnicity and confidence using digital technology will support the project team in including a diverse sample of patients. Once the slip is returned to the study team, the team will contact participants and invite them to take part in an interview. The study team will seek to interview three patients from each practice, aiming to include in the sample a range of age, gender, ethnic groups and confidence in the use of digital approaches. If more than three patients reply from a practice, the team will seek to recruit patients so that the overall sample includes a range of these categories, focusing on patients from backgrounds that are often overlooked or not included at all in research (e.g. ethnic minorities, patients from lower socioeconomic backgrounds, younger patients, patients with lower confidence with or access to technology).

Once a patient/carer returns the form they will be contacted by telephone, or email if no telephone number is provided. The patient will be invited to participate in an interview and their preference of how the interview is conducted agreed (telephone or video) and, if video, what their preferred platform is. A time and date will be agreed for the interview. Participants will have the option to complete a consent form online and email it to the research team or to provide verbal consent at the start of the interview. If participants wish to complete the consent form online, it will be emailed to them before the interview. Participants will be reminded they can withdraw from the study at any time.

Recruitment of health professionals

Once a practice has consented to participate in the study, the research team will discuss with the practice contact(s) (e.g. the Lead GP/Practice Manager/Research Manager) participation in the project. We will invite one or two GPs and one or two practice nurses from each practice, ideally in roles specifically for patients with long-term conditions, to participate in an interview.

Conducting interviews with patients, carers and staff

As discussed above, interviews will be conducted with clinical practice staff (GPs and practice nurses) and with a range of patients living with multiple long-term conditions. We anticipate conducting around 35-42 interviews in total. It is anticipated that interviews will be 45 – 60 minutes in length.

As interviews will be undertaken during the COVID-19 pandemic, they will be conducted by telephone or via video to limit the spread of any possible transmission and follow government public health guidance. A great advantage of using online video interviews as a qualitative research tool is that it allows researchers to transcend geographical boundaries, by nullifying distances and eliminating the need 'to visit an agreed location for interview' (Rowley, 2012). Although online video interviews cannot completely replace face-to-face interaction due to challenges in rapport and trust-building, understanding non-verbal cues, and variation in presentation of one's self, they work as a viable alternative (Iacono, Symonds, & Brown, 2016). Before and during the COVID-19 pandemic, the research team has developed extensive experience in conducting online qualitative data collection, including interviews and focus groups with healthcare professionals and patients. Some of the challenges and our proposed mitigation strategies for conducting online interviews are:

- Challenges building rapport and trust with the interviewee (Iacono, Symonds, & Brown, 2016): The researchers will ensure to spend a few minutes at the start of each interview asking the interviewee more informal questions to ensure that they feel comfortable. In addition, a lay information sheet outlining the project and the topics of discussion will be sent to the interviewee ahead of time (McGrath, 2018).
- Understanding non-verbal cues (Iacono, Symonds, & Brown, 2016): Where possible, the interviews will be conducted via video to support the reading of non-verbal cues. If interviews need to be conducted by phone, at the interviewee's request, the researchers will ensure extra effort is placed on active listening and speaking to the interviewee instead of using body language.
- Technology challenges (e.g. poor internet connection, poor image quality): The interviewers will test their internet connection and video quality ahead of conducting interviews. If the interviewee is facing technical difficulties, the interview could be switched to telephone (a back-up phone number will be provided to all interviewees). If interviewees are not

experienced in the video platform, the researchers will offer a 10-minute walk-through ahead of the interview.

- Security and confidentiality: Only BRACE-approved video platforms will be used to conduct interviews to ensure IT security. Participant confidentiality will be ensured by the researcher conducting the interview in a private location and taking time at the start of an interview to ensure interviewees are comfortable and are in a suitable location (University of St Andrews, 2020).

Topic guides will be developed and used as an aide-memoire during semi-structured interviews. Interviews will be audio-recorded and transcribed verbatim. The topic guides will be reviewed by the two PPI reviewers for this project.

Interviews with patients/carers will begin with a discussion of access to Digital First Primary Care and experiences of this. The management of the patient's long-term conditions (including any co-morbidities) with digital approaches to primary care will be explored including frequency of contact with the surgery, continuity of care, health professionals consulted with, and views on Digital First Primary Care. We will also explore the patient's most recent experience of Digital First Primary Care including experience of accessing Digital First Primary Care, length of time before contact from the surgery, the outcome of the consultation, satisfaction with the experience and any issues with equity of access and utilisation. We will explore the barriers and facilitators of Digital First primary for those with multiple long-term conditions.

In interviews with staff, we will begin by asking reasons for the use of Digital First Primary Care in the practice and how long the practice has operated in that way. We will explore their experiences of the use of Digital First Primary Care, impacts of the approach on workflow and the GP practice and staff, including multi-disciplinary team working and staff training. We will ask their views on the management for those patients with multiple long-term conditions and those who may be disadvantaged by or face inequalities in the use of digital approaches. We will also explore the "bigger picture" of using Digital First Primary Care and any benefits or disadvantages seen across the practice, such as trade-offs that are made for its use. Across all these topics and interviews, we will explore the use and experience of Digital First Primary Care, both before and during the COVID-19 pandemic, and expectations for future use beyond COVID-19.

In relation to the commitment required by NHS general practice staff to take part in the evaluation, the burden would be moderate. To mitigate this, practices will be remunerated for their time sending letters to patients. GPs and practice nurses will be asked to complete a single interview with a member of the research team of around 45 minutes in duration.

Data analysis and write up

Given the short timeframe of this project, we will adopt a pragmatic approach to qualitative analysis which will enable comprehensive analysis of the data but with a more rapid timescale to traditional qualitative analysis. Interviews will be audio-recorded and transcribed verbatim. A sample of transcripts will be read by researchers and codes applied to the data. A meeting will be held, attended by all researchers, to develop and establish themes drawn from the data and research questions. Interviewers will complete an interview summary following each interview noting key points from the data under the agreed codes. Researchers will frequently discuss codes, adding them to the interview summary as required. Transcripts will be reviewed and verbatim quotes from the text applied to the interview summary as relevant. Once all interviews have been completed a half-day interpretation and analysis workshop will be held and attended by all researchers.

WP3: Analysis and testing findings with key experts and service users

As outlined in the previous sections, the analysis will first be conducted for each independent form of data collection with iterative engagement with policy literature. We will then conduct cross-analysis across the work packages, bringing together the key themes from across the data collection. This will be achieved rapidly by holding at least three half-day workshops (before, during and after data analysis and write up) with the research team to bring together the knowledge and data collected throughout the project. This will result in the development of draft lessons learnt for policymakers concerning the future care of patients with multiple long-term conditions in primary care and recommendations for further research.

When a draft set of findings and lessons have been developed by the research team, these will be tested and sense-checked in two half-day online workshops. The content of both workshops will be the same but with different audiences attending each. One workshop will be attended by the wider BRACE team and external experts (we will invite key staff from the Department of Health and Social Care and NHS England, and peer policy analysts active in the field of care integration e.g. from the King’s Fund and Nuffield Trust) in Spring 2021. The other event will be attended by members of the BRACE health and care panel, as outlined in WP1.

A structured agenda will be prepared in advance of the workshops and will include time for plenary discussions, presentations of findings and analysis and smaller group discussions to reflect on the study findings and discuss implications. The agenda and a slide-deck of the emerging findings will be shared with the participants in advance of the workshop to allow for a structured and productive discussion. With participants’ permission, the session will be recorded via Zoom and members of the study team will take detailed notes during the workshop, particularly to note key messages emerging from the evaluation and to inform the approach to dissemination.

WP4: Synthesis, reporting and dissemination

The research team will combine the outcomes of the workshops in WP3 with the draft results and lessons learnt for the project. These final set of findings will also be synthesised and conceptualised within the context of the wider Digital First Primary Care context, particularly in relation to the rapidly changing COVID-19 and primary care environment.

These results will be written into a final report, submitted to the NIHR. The section below outlines the other dissemination activities that will take place in this work package. We will also seek the advice of the BRACE health and care panel in terms of the best ways to communicate findings to patient and lay audiences, to ensure we maximise reach and impact from our dissemination.

Expected outputs and plans for dissemination

Results from this evaluation project will be written up and widely shared in a number of forms; these will include:

- A final report submitted to the National Institute for Health Research, Health Services and Delivery Research Programme (NIHR HS&DR) to be published in the NIHR Journals Library.

- A joint short report, with the Improvement Analytics team at the Health Foundation, synthesising their quantitative and our qualitative work in this area.

- A range of slide packs to share findings with a range of key audiences including primary care clinicians, practice managers, commissioners, policymakers and patients/carers.

- Web-based resources such as a link to the full report, blogs (written independently and/or in collaboration with NHS/NHS-related organisations) to highlight key findings to non-expert as well as more expert audiences. Given the focus on patient experience, we will focus particularly on dissemination to patients, carers and organisations which represent patients and carers. We will work closely with our partner, National Voices, and their membership community to do this.

- Videos or podcasts of research team members and others (e.g. members of the BRACE patient and public involvement (PPI) and health and care panels) reflecting on the evaluation and its conclusions. These will be made accessible to a range of audiences (e.g. we will use subtitles for videos).

- Publication of an article in primary care professional press such as Pulse, Health Services Journal, or GP Online.

- Publication of the findings in high quality, peer-reviewed, academic journals.

- Oral and/or poster conference presentations at the British Journal of General Practice (BJGP) conference, the Society for Academic Primary Care (SAPC) conference and Health Services Research UK (which could be co-presented with the PPI reviewers for this project). We will also seek to present the work at other conferences attended by patients and patient groups.

- Disseminating findings through BRACE networks, drawing on the expertise and assistance of our PPI collaborators, health and care panel[2] (particularly members with communication/journalism expertise and those with primary care knowledge) and steering group members who are involved with the project and the BRACE Centre. We will also seek the guidance of Richard Kirby (NHS Chief Executive), Charlotte Augst (Chief Executive of National Voices) who are both BRACE co-investigators and the BRACE Steering Group to understand how best to communicate findings with NHS managers, staff, patients and carers.

Project timetable

The study will take place over six months , assuming timely access within our selected general practices, obtaining necessary ethical and governance approvals, and any changes necessary in relation to COVID-19. Figure 3 shows the overall study timeline and the key milestones for the project. The start date for this work has not yet been agreed.

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[2] The BRACE Health and Care Panel are a diverse group of people who support BRACE research. Their roles include commenting on protocols, attending dissemination events and workshops, and informing our prioritisation of research ideas and plans. They have varied backgrounds and include health professionals, members of charitable organisations, NHS managers, social care colleagues, and patients.

Figure 3: Study timeline and key milestones

	Mth 1	Mth 2	Mth 3	Mth 4	Mth 5	Mth 6
Design of research tools	■					
Obtaining practice details from providers	■					
Securing ethical/local management approvals	■	■				
Recruitment of general practice surgeries		■				
Primary qualitative research at each site		■	■	■		
Analysis and synthesis of findings			■	■	■	
Writing an NIHR report					■	■
Writing BRACE/IAU report						■

Project management, governance and delivery

Project management and quality assurance

This proposal has been reviewed by the BRACE Director (Prof Judith Smith), BRACE Deputy Director (Dr Jo Ellins) and by five independent reviewers, three drawn from the BRACE Health and Care panel (including two patient panel members and one GP), one primary care expert and one of BRACE's academic critical friends. The principal investigator, Dr Jenny Newbould (RAND Europe), will be responsible for the overall delivery and quality assurance of this project. The project manager, Lucy Hocking (RAND Europe), will be responsible for the day-to-day management of inputs by the University of Birmingham and RAND Europe team members towards this project. Dr Manbinder Sidhu (University of Birmingham) will be responsible for supporting the coordination of the evaluation. Jenny Newbould, Lucy Hocking and Manbinder Sidhu will conduct data collection, analysis and writing up the research. Project oversight will be provided by the BRACE Deputy Director (Dr Jo Ellins).

We will apply the following project management principles and processes: ensuring clarity of team members' roles, and the delegation of tasks and reporting duties; internal team meetings and catch-ups; and use of project planning tools (such as Gantt chart, timesheets, internal monitoring reports). RAND Europe's approach to project management is guided by its ISO 9001:2015 certification and is seen as fundamental to the successful and timely delivery of the evaluation.

For this particular project, weekly team video meetings will be held with the research team to update progress and address any arising issues promptly. The project team will report to the BRACE Executive team, Steering Group, and NIHR HS&DR as and when required. We describe potential risks and mitigation strategies in Table 1.

All reports and other deliverables will be peer-reviewed by the BRACE Director (Prof Judith Smith) and colleagues drawn from the following: BRACE's academic critical friends (Professors Mary Dixon-

Woods, University of Cambridge, and Russell Mannion, University of Birmingham), and members from the Health and Care Panel, and Steering Group.

Table 1: Potential risks and mitigation strategies

Risk	Impact	Likelihood	Mitigation
Increased demand on NHS workforce as a result of the COVID-19 pandemic	High	High	The project team will be prepared for the potential likelihood that NHS general practice staff could suspend participation in this evaluation if the transmission of the virus increases either locally and/or nationally. The principal investigator for the project will communicate with senior members of the BRACE Executive team and seek guidance from NIHR HS&DR if such a situation occurs and will act accordingly.
Loss of key staff	High	Medium	Although the project team is small, in the event of one member leaving there is capacity and resources for this person to be replaced readily from the wider BRACE team.
Non-engagement from case study sites	High	Medium	The principal investigator has built relationships with the Health Foundation who have already recruited some general practices for their quantitative study. Those general practices are aware of the opportunity to take part in a qualitative evaluation. Team members will have ongoing meetings with site delegation teams/gatekeepers, to discuss the contribution required from each party for the duration of the evaluation. Only a small number of practices are needed for inclusion in the study.
Loss of data	High	Low	Although unlikely that data loss would occur, the University of Birmingham and RAND Europe have resilient, well-tested IT systems with data from all computers backed up in multiple locations which would enable the recovery of any lost data on local servers. The study team will develop a data management plan for appropriate storage of consent forms and audio files according to the General Data Protection Regulation (GDPR) guidelines.
Inability to recruit participants for interview	High	Medium	There is a risk the study may be delayed in recruiting participants because it will be the responsibility of the general practice to identify participants on behalf of the study team (due to patient confidentiality). At each practice, the project team will identify a key point of contact regarding the practice’s participation and will be in regular contact with them. The team will produce detailed, descriptive information sheets to inform potential participants of the importance of the evaluation, why we have asked them to take part, their involvement, and associated risks and benefits.

Ethical issues and approvals required

We will seek appropriate governance and research ethical approval from the University of Birmingham (as the sponsor), NHS Health Research Authority (HRA) and local NHS Research and Development approval to recruit participants and collect data, as required.

The project team will contact the HRA to ascertain whether our study will be categorised as service evaluation or research. Therefore, the HRA's outcome will determine whether NHS Research Ethics Committee approval is required. We will contact the relevant local NHS clinical research network (CRN) offices for our chosen general practices if the study is categorised as research. If the project is categorised as service evaluation an application for ethical review by the University of Birmingham's Research Ethics Committee will be made at the earliest possible opportunity.

We have referred to the NIHR framework for restarting NIHR research activities which have been paused due to COVID-19 to determine the appropriateness of beginning our rapid evaluation during the pandemic and deem it to be appropriate (Appendix 1).

Participant consent

We have sought the advice and guidance of the HRA and University of Birmingham ethics team when devising our approach to taking informed consent. As such, interviewees will either provide verbal or electronic consent (whereby electronic signatures include: stylus or finger drawn signature, a typed name, a tick box and declaration, a unique representation of characters and a fingerprint scan). For verbal consent the study team will take a three-step approach: 1) the researcher will explain the study to the participant verbally, providing all pertinent information as covered in the patient information sheet and allow the potential participant opportunity to ask questions; 2) following this verbal explanation, the participant will be given a few minutes to decide (if needed) whether they are happy to continue with the interview; 3) the researcher will then read all statements as detailed on the consent form verbatim and ask whether the participant agrees to all before commencing the interview.

We will provide information sheets to all participants taking part in our evaluation which will detail its aim, study design, risks, benefits, who they may contact if they have further questions and their right to withdraw from the study at any point. Participants taking part in interviews will receive a letter from the study team along with an information sheet.

Confidentiality

Data stored on research team laptops will be both password and bit locker protected. Electronic data will be held securely on a restricted access network. The study team will limit the amount of paper-based data and work on electronic files; however, where there is any paper-based data it will be stored in a locked filing cabinet. Participant identifier codes will be stored separately from the anonymised interview transcripts.

Indemnity and insurance

The University of Birmingham holds the relevant insurance cover for this study, as confirmed via our BRACE contract with NIHR.

Sponsor

The University of Birmingham will act as the main sponsor and guarantor for this study.

Data storage

The project team will store data at the University of Birmingham for up to five years after data collection is complete (or until it is no longer necessary). Data will then be archived in accordance with University of Birmingham research governance processes.

Funding

BRACE, including this evaluation, is funded by the NIHR Health Services and Delivery Research (HS&DR) programme (HSDR16/138/31).

Research team

Table 2 presents the team members and their corresponding roles and expertise.

Table 2: Study team members

Team member	Role and contribution	Relevant expertise
Dr Jenny Newbould, Research Leader, RAND Europe	Principal investigator from RAND Europe, project conception and scoping, data collection, analysis, writing of reports/dissemination	Research Leader at RAND Europe with extensive experience in health care research having conducted numerous research projects for clients including the Department of Health, NIHR and NICE. Jenny specialises in qualitative research techniques, particularly the use of interviews. She managed the Telefirst NIHR project (PI Martin Roland) about telephone triage in general practice as an alternative to face-to-face appointments. She is a team member for another BRACE evaluation titled “Children and Young People’s Mental Health Trailblazer programme”.
Lucy Hocking, Analyst, RAND Europe	Project Manager from RAND Europe, project scoping, data collection, analysis, writing of reports/dissemination	Lucy Hocking is an Analyst at RAND Europe with experience in public health, health improvement and innovation and health services research. Lucy has experience with a range of qualitative and quantitative research methods, including literature review, conducting and analysing interviews with a range of key stakeholders, developing in-depth case studies and designing and analysing surveys. She is a team member for another BRACE evaluation titled “Children and Young People’s Mental Health Trailblazer programme”.
Dr Manbinder Sidhu, BRACE Research Fellow, University of Birmingham	Researcher from the University of Birmingham, project scoping, data collection, analysis, writing of reports/dissemination	Manbinder is an applied social scientist with 10 years’ experience of health research with the NHS and third sector organisations. Manbinder has extensive experiences using a range of qualitative methods and application of theory. He was the project manager and a team member for two completed BRACE evaluations titled “The early implementation of primary care networks in the NHS in England: a qualitative rapid evaluation study” and “Vertical integration of GP practices with acute hospitals: a qualitative rapid evaluation study”.

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Appendix 1: Framework for restarting NIHR research activities which have been paused due to COVID-19

#	Factor	Requirement	Action taken by the project team
1	Study viability	• Sponsor and funder have assessed and agreed to restart • Regulatory approvals in place • No impact on support for UPH COVID-19 studies • All necessary research funding is confirmed • Funding to meet any Excess Treatment Costs has been confirmed • Sponsor and funder are satisfied with the arrangements for patient and public involvement in the study	• Funder has agreed that the project may begin subject to a satisfactory protocol. Sponsor (University of Birmingham) will confirm if the project can begin subject to a satisfactory application for ethical approval. • Research funding is confirmed. • Sponsor and funder will determine whether they are satisfied with patient and public involvement in the study once protocol and application for ethical review are submitted.
2	Safety	• Risk of exposure to COVID-19 for patients and staff has been mitigated • Physical access complies with government restrictions on social distancing • Assessment of COVID-19 testing and PPE requirements completed • Study arrangements comply with local organisation / site policies in respect of COVID-19	• This is a qualitative study whereby all data collection will be completed online; therefore, participation in the study will not increase patients and staff exposure to COVID-19. • Members of the project team will not be visiting NHS sites for data collection. • Participant information leaflets will signpost participants to relevant information with regard to concerns raised by COVID-19

		• Site compliance with regulatory requirements has been confirmed by the organisation's R&D Director or equivalent • Clear guidance on safety issues and precautions has been provided to participants and staff • Participants are asked and reassured about any concerns regarding COVID-19 - participants need to feel safe and confident	
3	Capacity and site readiness	• Local clinical lead (Principal Investigator) confirmed and in place • Research staff in place • Health and care site / service 'open for business' to the full extent required for the study • Research management and support in place (site R&D office, CTU, LCRN) • All necessary supporting departments (e.g. pharmacy, pathology, radiology) have resource and capacity. Assess study dependencies. • All necessary supplies have been procured and are in place (including IMPs and PPE) • For paused studies, study data have been checked for data integrity to ensure that data remain robust and/or fit for purpose • Physical access arrangements for participants have been assessed and are satisfactory	• Principal Investigator and members of the study team are in place to commence the project, along with appropriate management and support in place (at both University of Birmingham and RAND Europe) appropriate for service evaluation • No physical access arrangements for participants are required.

		- Permission to restart from site legal entity	
4	Prioritisation	- Not required if the study does not require NIHR-funded support - Where prioritisation is necessary, this should be on the basis of ‘study urgency’ (section 6)	- Prioritisation for this study is based on feedback received from NIHR HS&DR. Therefore, input from the NIHR Restart Implementation group is not required.