NIHR Digital Technologies – Digital Facilitation in Primary Care

ATTACHMENT 1: Detailed Research Plan

1. Full title of project

Facilitating access to online NHS primary care services - current experience and future potential

2. Summary of Research (abstract)

Background
Recent years have seen a push towards the adoption of online services in primary care, ranging from booking appointments and ordering repeat prescriptions, through to the use of email and video consultations with patients. Around a quarter of patients are now registered to use online primary care services such as booking appointments, ordering repeat prescriptions, and viewing their own records. Online services have the potential to reduce administrative burden, improve communication, and improve access. However, to realise these benefits, patients must be able to, and wish to, make use of online services; there is the danger that these initiatives may increase inequalities in access to health care for some patient groups. One potential way to support the use of online services, which we address in this application, is through 'digital facilitation'. This is 'that range of processes, procedures, and personnel which seeks to support NHS patients in their uptake and use of online services.'

Aims and objectives
We aim to identify, characterise, and explore the potential benefits and challenges associated with different models of digital facilitation currently in use in general practice in four areas of England, and to design a framework for future evaluations of the effectiveness and cost-effectiveness of such interventions. We will examine the different models of digital facilitation that exist, establishing the evidence base behind them, and exploring their current use in English primary care. Further, we will examine the potential benefits and challenges associated with different models of digital facilitation from the perspective of practice staff, patients, carers, and other stakeholders.

Methods
A mixed methods approach will be employed consisting of four interlinked work packages. 1) A scoping review will characterise the different approaches to digital facilitation and establish the current evidence base about the effectiveness and cost-effectiveness of different approaches to digital facilitation. 2) A survey of 500 practices, and analysis of the responses, linking to data from the national GP Patient survey. 3) Qualitative research exploring the potential benefits and challenges associated with different models of digital facilitation, comprising of focused ethnographic case studies in general practice and interviews with stakeholders. 4) A synthesis of learning from work packages 1-3 and development of a framework to inform future evaluations. Patients and the public will be involved throughout.

Timelines
This is a 25-month study. WP1 will run from months 1 to 9, WP2 from months 6 to 17, WP3 from months 9 to 23 and WP4 from months 21 to 25.

Anticipated impact and dissemination

Our dissemination strategy will be focussed on informing NHS patients and carers, policy makers and frontline staff about the current status of digital facilitation, including potential related barriers and benefits. In addition to academic publications we will present our findings at relevant academic, service, and policy conferences, and engage directly with decision-makers and patients through targeted dissemination of a brief research summary. This will be facilitated through the development of a project website to support service providers in the use of digital facilitation, and a stakeholder dissemination event held in London.

3. Background and Rationale

What is the problem being addressed?

Recent years have seen a push towards the adoption of online services in primary care, ranging from booking appointments and ordering repeat prescriptions, through to the use of alternatives to face-to-face consultation with a patient (e.g. email, video). NHS England reports(1) that 13.9 million patients in England (c 25% of patients in England) are now “registered to book appointments, order repeat prescriptions, view their patient records and see their test results” via online services. Although uptake of alternatives to a face-to-face consultation are increasing, their use is not routine in practice (2, 3). In this application we address ‘digital facilitation’, meaning ‘that range of processes, procedures, and personnel which seeks to support NHS patients in their uptake and use of online services.’ The specific focus of this submission relates to those processes, procedures and personnel provided by or on behalf of GP practices to support access by their registered patients, and carers of those patients, to NHS online primary care services.

‘GP online services’(4) is a nationwide programme introduced by NHS England and the Royal College of General Practitioners (RCGP) in 2013 to encourage practices to offer online services; data are available on the extent of online provision for all practices in England(4, 5). The programme provides support and resource guides to GP surgeries developing their online offer, through a mixture of online and physical promotional materials. Furthermore, by 1 July 2019 it is expected that there will be an NHS app available to all patients that will act as a platform to access online services(6).

As provision of GP online services is a key priority for policymakers(7, 8), to ensure the full realisation of potential benefits and also to avoid detriments such as precipitating greater inequality in access to health care information and services it is important to understand how barriers to uptake might be overcome, Digital inequalities tend to adversely affect certain groups of people. In this context, individuals from older age groups, non-white ethnicities, those in lower socioeconomic groups, those in poorer health, and individuals in rural settings are recognised as vulnerable groups (9-12).

One way to combat these potential inequalities is via digital facilitation - actively supporting patients and carers in using practice based online services. We take this to include services accessed via the practice website (e.g. booking appointments, access to records), but also practice-level information hosted on other websites such as NHS Choices, GP patient survey and CQC reports. Our collaborator, Lea Valley Health Federation (nine GP practices, 86,000 patients), has employed a local digital facilitator officer to support patients’ and staff engagement with their online services(13). In Lea Valley, implementation was driven by a ‘Capacity and Demand audit’(14). The appointment of a digital facilitator was undertaken with the ambition of engaging patients and staff who might otherwise not engage, for personal or economic reasons, or because they lack the digital skills, with online GP services. Appointment of such an individual represents one approach to supporting and facilitating patient and user access. There is, however, no existing evidence as to the nature and scope, effectiveness, or cost impact of appointing such an individual. Other routes to achieve those aims are likely to be of potential value, but the nature and extent of innovative approaches offered by practices are unknown.

Why is the research important and timely in terms of improving the health and/or wellbeing of the public and/or to patients and health and care services?

The NHS is under pressure due to the increasing demands of a growing and ageing population, technological progress, and changing expectations among the public. Technical innovation – new technologies, services, products and ways of thinking - has been earmarked as the most promising solution to dealing with these pressures(15), and has been strongly promoted by the UK Secretary of State for Health(16), specifically in respect of primary care(17). The NHS has recently announced plans to provide fibre optic internet service to every GP practice, aiming to allow them to maximise their use of both digital technology (18) and established High St digital health hubs(19). Some have expressed concern at the limited investment expended by healthcare planners and governments in addressing gaps identified round the uptake and use of services and innovations – such as those of NHS online services(20).

Although there is a clear drive towards the development, promotion, and use of online GP services, the impact for patients and for GP practices remains unclear. There is potential for NHS patients and primary care staff to benefit through reduced administrative burden for staff, better communication between patients and practices, expanded health knowledge for patients, and improved access to care services(21). But there is also the danger that the initiative creates or exacerbates inequalities in access to healthcare information and services(22). These concerns were echoed by our patient/ carer partners during discussions at early stages of developing this proposal.

Engaging ‘harder to reach’ patients and reluctant users of online services offers potential to reduce inequality of access, but also to improve patient health and potentially reduce GP and/or other NHS costs. Other sectors of health, commerce, and business have developed initiatives to support clients in using online services, for example Barclays ‘Digital Eagles’ where selected individuals act as champions to encourage confidence and improve skills in use of digital services(23). Within health, important learning might also be gained from research on introducing and implementing tele- and remote- health initiatives (24-26). Our team already has very considerable experience in conducting research in this area (22, 27-29).

How does the existing literature support this proposal?

Importance of access to online services: Evidence suggests that access to online services may improve outcomes for NHS patients and staff. In a recent systematic review, Mold et al reported that patients accessing online services in primary care had higher levels of satisfaction, improved self-care, and better communication and engagement with clinicians. However, the majority of the studies reviewed were from the US. The same group of authors have also reported that patient access to online services was associated with improved reports of convenience and satisfaction, although staff were concerned about impact on workload and risk to privacy.

Challenges to patient engagement with online services: Research shows that medically underserved and vulnerable populations are less likely than other patient groups to engage with digital health technologies(30). The reasons for this lower engagement are complex and include factors that limit access to technologies as well as factors affecting motivations to use the technologies. Specific barriers to engagement with online services for these groups include a lack of experience with using the internet(30, 31), lower health literacy(30, 32), and a lack of trust towards the information being provided through online interfaces(30, 33). 'Usability' can also impede older users from accessing information through patient portals. For example, when older users lost required access codes after registering on patient portals they were discouraged from using the service (30). Research in Scotland has identified further technical and practical considerations (poor connection, 'frozen' images, poor sound quality, slow broadband) in adopting IT innovations (34, 35), including amongst rural populations, who may have limited access to good quality broadband services. In their reviews of the literature, Irizarry et al(32) and others(8) have concluded that the ability of patients to access online health services is strongly influenced by combinations of personal factors such as health literacy, health status, age, ethnicity, education level and whether individuals have caring responsibilities(36). Likewise, in a systematic review of qualitative studies examining the factors affecting patient recruitment to digital health interventions, O'Connor et al(37) concluded that greater investment is required to improve computer literacy to ensure that technologies are accessible and affordable. Cognisant of these issues, we are currently involved in research examining the unintended consequences of online services in primary care (38, 39) and research investigating patient use and experience of online booking in general practice.

Challenges to staff engagement with online services: The digital competence of healthcare professionals and their acceptance of online service provision are also important for successful implementation of online patient services. Konttila et al. (40) argue that healthcare professionals are more accepting of digital technologies when they perceive the technology as helpful for patients and supportive of the practice's workflow, but that factors such as a lack of comfort or perceived issues of competence with using the technology can decrease acceptance and uptake. Healthcare professionals were found to be less accepting of digital technologies when they misunderstood the purpose of the technology, or found it difficult or uncomfortable to use, or when it was not seen as part of their principal work. Konttila and colleagues' systematic review (40) also found that healthcare professionals often experienced information technology education for themselves as pointless, under-resourced, time-consuming, and with poorly understood benefits. However, supportive organisations and managers were found to facilitate support for staff education and acceptance of digital technologies. It thus appears that support for practice staff in using and supporting patients in using digital health technologies is critical, and must be carried out in a sensitive and constructive manner.

Digital facilitation: Although research on the use of digital facilitation is relatively limited to date, there is evidence to support its use and its ability to reduce inequalities in access to digital resources amongst 'harder to reach' and vulnerable groups. One approach to facilitation identified by O'Connor et al involved the use of 'direct engagement', including "consultations with health professionals, employers, personal recommendations from family or friends or being spoken to by research or management staff". Personal recommendations from family or peers, or the endorsement of digital resources by practice staff were found to increase enrolment in digital health technologies. This is further supported by evidence from systematic reviews which find that patients more generally, including comparatively less well served populations, are more likely to engage with digital health resources when they have the encouragement of friends or family members (31, 41, 42). Evidence also suggests that people with lower education levels and older people require more support than other patient groups in order to use digital health applications. We have not identified any evaluations of such engagement approaches in practice although we have identified that poor understanding of service provision may be a barrier to service uptake(43), and that staff have expressed concerns re adverse workload implications which might ensue. There is also evidence showing that introducing the NHS App was associated with improved digital access during its pilot testing phase, with 64% (out of 3192) of users of the App reporting that they had previously not used online services to access GP services(44). Feedback from practice staff during the pilot testing of the NHS App identified that some practice staff wanted additional training and support in order to effectively communicate with patients about the app.

Other interventions designed to target direct engagement with digital technologies have been identified, for example the use of 'champions' for GP online services(45), as well as specific interventions to improve people's online health literacy(46). Cowie et al (45) evaluated the implementation of an online tool providing advice to support self-management and the opportunity to digitally consult with a GP, concluding that the presence of a champion within the practice was a significant factor in ensuring successful integration of the tool. Amongst some patients who had no previous computer experience, training on computer and internet use, effective search skills and interpretation of online information was associated with greater health information seeking and interpretation skills, and with increased self-management.

It is thus important to understand the extent to which digital facilitators or other approaches to digital facilitation are being used, how they are being used, the impact they are having on uptake of online services, and how such uptake may be impacting patient health and access to healthcare information and services, GP practices, and the wider NHS.

4. Aims and objectives

The overarching aims of this programme of research are to:

- Identify, characterise and explore the potential benefits and challenges associated with different models of digital facilitation currently in use which are aimed at improving patient access to online services in general practice in England.
- Use the resulting intelligence to design a framework for future evaluations of the effectiveness and cost-effectiveness of such interventions.

To address these aims, we will conduct a series of interlinked work packages (Attachment: Flow Diagram). The objectives of these work packages are to:

- Review published literature to understand and characterise the range, effectiveness, and cost-effectiveness of models of digital facilitation for improving access to online services within health and other sectors, and to develop a typology of digital facilitation [Work package 1].
- Undertake a survey to investigate the range of digital facilitation services currently offered in a sample of English primary care, relating this to patient experience of care in those practices [Work package 2].
- Conduct a qualitative exploration seeking to understand in-depth and from the perspective of practice staff, patients and other stakeholders the potential benefits and challenges associated with different models of digital facilitation [Work package 3].

- Synthesise learning from these elements and develop a framework for future evaluations of effectiveness and cost-effectiveness of models of digital facilitation [Work package 4].

Theoretical framework

We will use Weiss' theory based evaluation(47) as our theoretical framework to understand how, and in what ways, different models of digital facilitation bring benefits and challenges to general practice.. Weiss distinguishes between 'program theory', which specifies the mechanism of change, and 'implementation theory' which describes how the intervention is carried out.

We will do this by drawing on the findings of the evidence synthesis, survey and case studies to develop the program theory and the implementation theory.

To develop the 'program theory' we will use a realist approach to describe provision of digital facilitation in terms of:

- context (for example characteristics of the general practice, the target patient population, the policy framework, and the IT infrastructure)
- the theory and assumptions underlying the intervention (how and why digital facilitation might lead to benefits)
- the flow of activities that comprise the intervention (the key processes that occur when patients make use of digital facilitation)
- intended benefits/outcomes (those deemed important to patients and practitioners)

The 'implementation theory' will explore moderating factors which influence the extent to which the process and outcomes are achieved, such as factors acting as barriers and facilitators to practices offering digital facilitation or to different groups of patients using them.

5. Research Plan / Methods

Work package 1: Review evidence (m1-9)

We will undertake, and register with PROSPERO, a Scoping Review(48, 49) of the literature to: (i) characterise and differentiate between different approaches to digital facilitation; and (ii) establish the current state of knowledge about the effectiveness and cost-effectiveness, and perceived advantages and challenges, of different approaches to digital facilitation. Importantly, the review will draw on health and non-health literatures to learn from different contexts in which digital facilitation has been used. The definition of a Scoping Review is a review which "aims to map rapidly the key concepts underpinning a research area and the main sources and types of evidence available" (49). Thus the basic framework of a Scoping Review is similar to that of a systematic review (and should not be confused with the rapid, light touch type of preliminary review used to scope a full 'systematic review'): the research question is identified, relevant studies are found, and studies are scrutinised for inclusion and exclusion. However, in Scoping Reviews the criteria for inclusion are not based on the quality of studies or on particular study designs but on the relevance of the topic. This results in more studies being included. Also the search strategy is iterative, so that whereas a systematic review defines its boundaries precisely at the start, the need for a scoping review to identify all relevant literature means that the approach may evolve during the study. Data from included studies will be charted in the same way as in a systematic review and key themes will be identified. We do not propose to undertake quantitative synthesis of the data (e.g. through meta-analysis). Instead, the analysis will be based on a narrative description of major themes. Scoping reviews are particularly well suited to topics that have not been extensively researched and/or where it is anticipated literatures may be diverse and so is an appropriate methodology for our research questions.

We will work with RAND's experienced information specialists and our PPI team to derive initial search terms related to digital facilitation (as defined above) in primary healthcare and different approaches to that, and will adapt the search terms subsequently as necessary. Existing literature reviews on related topic areas, such as those by Mold et al(9, 50) and by Borg et al(51) provide useful starting places for deriving search terms, and these will be adapted to our particular focus on approaches to digital facilitation in primary care settings, and how different approaches might counteract, or exacerbate, inequalities in use of online services (an important issue which was highlighted by our patient/ carer partners). The scope of our research goes beyond that of Mold et al. (9) as it is not limited to facilitation of access to electronic health records and test results in primary care but extends to facilitation of access to other primary care online services including appointment booking, repeat prescription ordering, online consultations and online self-help that substitutes for primary care. For health sector literature we will interrogate Pubmed, Embase, CINAHL, Global Health, Web of Science, the Cochrane Library, and NHS Evidence. We will take account of key government policy and healthtech strategy (UK Government 2018) and will search for grey literature (e.g. in the Health Management Information Consortium (HMIC) database).

We will incorporate additional searches of literature from non-health sectors where members of the public are encouraged to use online services as a substitute for face-to-face consultations or transactions. We have identified retail banking as being of particular interest in this context, given the rapid rise and successful penetration to widespread use amongst the public in that sector(52). We will use social science databases (SSCI, SSRN) to capture relevant literature from this and related sectors. We will also incorporate snowballing techniques to extend our learning to other sectors and settings identified from reference lists of relevant publications identified in the health care and retail banking literatures.

All searches will be restricted to the last 10 years (January 2010 onwards) to reflect the rapid and recent changes to the digital landscape, and to English language publications. Other inclusion and exclusion criteria will be developed fully as part of the Scoping Review method but provisional criteria are as follows.

Criterion	Include	Exclude
Topic relevance	Digital facilitation of primary healthcare online services and non-health areas of customer service	Where no reference to facilitation by or on behalf of primary care practices and no reference to comparable digital facilitation in retail banking or other areas of customer service
Scale and spread of intervention	At all scales and geographic levels from individual site to national coverage	None
Country	UK or other high income countries	Low and middle income countries
Year of publication	2010 onwards	2009 or earlier

Study characteristics	Empirical	Solely theoretical
Language	English	Non-English

Titles and abstracts will be screened against these criteria and de-duplicated. Extracted references will be independently screened by a second reviewer and disagreements regarding inclusion resolved by internal discussion with a third member of the research team, so as to guide screening of the remainder. Full texts will then be assessed for eligibility. We will extract data relevant to digital facilitation (digital technology type, facilitation purpose, method, mode of delivery, target population, content, setting) and study details (study type, outcomes, size, setting). We will seek to capture health outcomes, staff and patient/carer experience, impact on service use, cost, and equity of access to healthcare services and information, and the nature and extent of other reported outcomes. Through a narrative synthesis we will characterise and differentiate between different types of facilitation and synthesise evidence relating to effectiveness or cost-effectiveness, inequalities of access to online services, or potential advantages and challenges of different approaches.

The review will make a contribution to the literature by assisting us in developing a typology (53) of digital facilitation. A typology may, for example, help to differentiate between different ‘types’ and characteristics of digital facilitation (e.g. according to desired outcomes – improved skills, uptake, confidence, mode of facilitation, range of online services covered, implementer, and role of patients and carers). The review will help to identify dimensions it may be helpful to consider in distinguishing types of digital facilitation. The typology will directly inform the other elements of our study, for example the survey design, sampling and content of case studies, and design of topic guides for semi-structured interviews. It will also allow us to further populate and refine our logic model(s) and associated theories of change for different models of digital facilitation. The typology will be further refined on the basis of findings through the other work packages.

Work package 2: Survey of practices and analysis of GP Patient Survey data, and patient survey (m6-18)

Informed by initial findings from WP1 and discussion with our PPI group, we will survey around 500 practices asking about the range of online services offered to patients registered in the practices. We will enquire about the range of processes, procedures, and personnel put in place within the practice which seeks to support NHS patients in their uptake and use of online services (i.e. digital facilitation). We will ask whether any such initiatives are targeted at particular patient groups. We will also ask about activity carried out by the practice to promote the use of online services (which may exist in the absence of support), and whether traditional access to services has been withdrawn and replaced entirely by online services. The importance of including these questions came from discussions with our patient / carer partners. The survey will provide a broad overview of the extent to which digital facilitation is taking place across primary care across our study sites as well as providing an understanding of the methods that are being used. Furthermore, the survey will be used to identify practices as potential participants in the case-study work package. The survey will cover three broad geographic areas – South-west England, West Midlands, East of England/North London – co-located with the three research centres. These geographic areas cover a population base of over 4 million individuals across a range of practice settings, and, we believe, will give a broad general perspective on digital facilitation more widely across England.

Similar surveys (including our own) of general practice based staff typically obtain response rates of 30%-45% (29, 54-58). However, by targeting both practice managers and all GPs, one study acquired at least one response from 76% of practices when the overall individual response rate was only 33%.

Informed by this, we will employ a novel sequential mixed-mode approach to maximise response rate. Firstly, practices will be emailed to alert them that the survey should be expected. One week later, the survey will be emailed to the practice manager. If no response is received within two weeks, a postal questionnaire will be sent to the practice manager. In the continued absence of response after two further weeks, the questionnaire will be posted to up to four named GPs at the practice. We will then work with the local CRN clinical support teams to obtain as many responses from non-responding practices as possible. Finally, where no response has been received from the practice, a member of the CRN will make contact by phone to encourage/facilitate participation. Where several responses are obtained from a practice, we will use the first response received as the index response. We will incentivise participation at practice level by allocation of vouchers for practice use through a prize draw amongst respondents. To further enhance likelihood of participation the survey questionnaire will be brief. It will consist of a number of questions with tick box response options informed by the evidence review. We will incorporate free-text response options in order that approaches to digital facilitation not considered at the outset of the survey are not missed. We will also allow practices to provide any further related observations in an extended free-text response. Where a postal mode is employed, pre-paid return envelopes will be provided. With these approaches, we expect to achieve a response rate >60% thus maximising information obtained, enhancing practice-level generalisability, and optimising research investment.

Figure 1 shows how the information collected in the practice survey will be used within this WP and WP3. A descriptive analysis will examine the presence/absence of, and differing approaches to, digital facilitation being employed and feed into the typology being developed throughout this project. Where possible, we will identify groups of practices employing similar approaches. These groupings will also be used in further comparisons utilising data from the national GP Patient Survey (GPPS)(59, 60) in order to assess the extent to which the use of digital facilitation is associated with patient experience. Restricting GPPS data to that which relates to practices which responded to our survey, we will focus on a number of questions which address the awareness and use of online services amongst GPPS respondents (appointment booking, ordering repeat prescriptions, accessing medical records, online appointments) and the ease of use of the practice website. Comparisons will be made between practices employing different approaches, and with those not undertaking digital facilitation. The interpretation of these comparisons will depend on the number of practices found to be using a similar approach. If the number of practices found to be using a similar approach is small, we will apply considerable caution with regards to the generalisability of the findings, considering them descriptive. To counter limited generalisability due to finding few practices using digital facilitation, and to gain insight into the issue of digital inequality, a further investigation will be undertaken using national GPPS data. We will compare the reported ease of use of the practice website (a proxy for facilitation/enabling efforts) with the reported use of online services, and consider whether easy-to-use websites are associated with increased uptake of online services in certain socio-demographic groups. Mixed effects logistic regression models will be used to analyse person-level GPPS data, including adjustment for patient factors known to be associated with reported patient experience (i.e. age, gender, ethnicity, deprivation, health status) and a random intercept for practice to account for clustering of respondents within practice. In all GPPS analyses, we will explore the potential for digital facilitation to impact health inequalities by introducing interaction terms with demographic variables, which will indicate whether there is evidence for different levels of association existing between different patient groups. We have considerable experience of adopting such approaches (61-65).

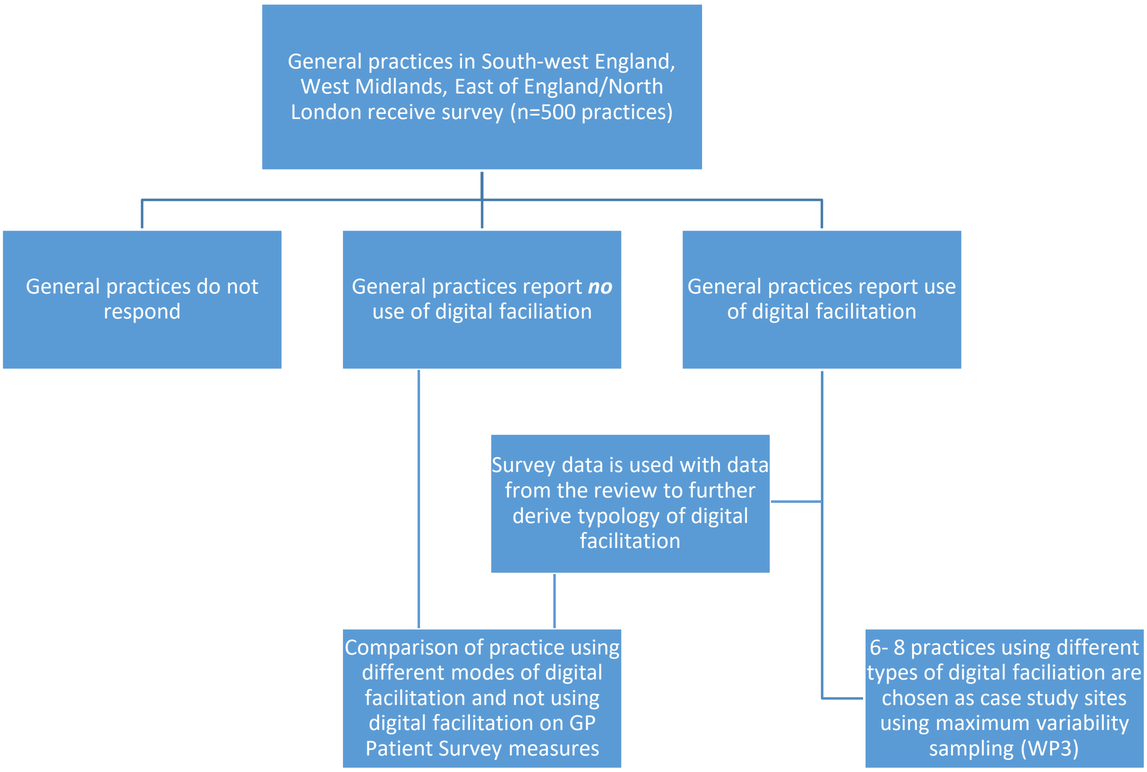

Figure 1 – Flow chart illustrating how the data collected in the practice survey will be used in WP2 and 3.

Sample size: Assuming a response rate of 60%, we expect 300 responses to the practice survey. Our power calculations are based on an assumption that 10% of practices responding to the survey will report use of digital facilitation, and an average of 104 responses to GPPS per practice(66). The detectable difference between practices using digital facilitation and those not doing so will vary between outcomes of interest, according to the background rate of awareness/use. This is illustrated in the table below which shows the differences detectable with 90% power.

	Outcome	**Background % reporting use/awareness**	**Digital facilitation practices % reporting use/awareness (hypothesised)**	**Detectable difference (absolute %)**	**Odds ratio**
Booking appointments online	Awareness	40.6	43.6	3.0	1.13
	Use	12.9	15.0	2.1	1.19
Ordering repeat prescriptions online	Awareness	37.9	40.9	3.0	1.13
	Use	14.3	16.5	2.2	1.18

Accessing medical records online	Awareness	12.7	14.8	2.1	1.19
	Use	3.3	4.5	1.2	1.38

Analyses of national GPPS data that we plan to undertake (i.e. those not restricted to those practices responding to our survey) will be based on data from around 750,000 respondents and so will have substantially more power than the restricted analyses described here. Examination of interactions will be underpowered in the restricted analyses and so will be considered exploratory.

Patient survey

To explore patient's experience of digital facilitation in detail, we will undertake a survey of patients across a large number of practices as part of WP2, building on our recent experience of conducting a similar survey in 43 practices in the West Midlands(67). Our survey will focus on digital facilitation, and patient's perceptions of, and responses to, practices' efforts in this area.

We will build on the survey of 500 practices referred to above (WP2), which will allow us to characterise practices in respect of their status vis-a-vis digital facilitation – what arrangements they have implemented, what modes of facilitation they are using, and other relevant characteristics. The patient survey will allow us to relate patients' observations and attitudes towards digital facilitation and online services to the practice reported digital facilitation characteristics. We will invite the (anticipated) 300 participating practices responding to our initial practice survey request (after reminders and telephone follow-up), expecting that around 40% of those 300 practices (i.e. 120 practices) might be prepared to participate and support this patient survey element of WP2. We will undertake a survey of 100 randomly selected adult patients in each practice (aged 16 years or over). The survey would be brief, but incorporate sections on awareness, availability, and uptake of online services within the practice. Respondents would be asked to provide basic sociodemographic information along with a note of carer status (including parents of children, those who have other caring responsibility, as well as carers of patients who live with mental health disorders, learning disabilities, dementia or other longstanding conditions). Where possible we will draw on standard question items, for example using wording from GP Patient Survey, General Household Survey, or other recognised national surveys thus minimising the need (and associated cost) for extensive survey instrument development. The total sampling frame in those practices would thus be c.12, 000 (120x100) patients. We anticipate a response rate of 35% - 4200 completed responses – 35 respondents per practice. We will deploy two reminders, and incentivise response with a free prize draw entry. Whilst this sample is unlikely to provide statistically reliable scoring of patient experience at the level of each practice, we will be able to make comparisons across groups of practices employing different methods of digital facilitation. For example, with this sample size we would have 90% power to see a difference between 30% of patients being aware of digital facilitation in 40 practices employing one mode of digital facilitation, and a rate of 34% in 40 practices employing another mode).

Work Package 3: Qualitative exploration of the potential benefits and challenges associated with different models of digital facilitation (m9-21)

We will conduct a qualitative exploration in general practice seeking to understand in-depth and from the perspective of practice staff, patients and carers and other stakeholders the potential benefits and challenges associated with different models of digital facilitation. The qualitative exploration will be comprised of two elements; focused ethnographic case studies in general practices, and an interview study with key stakeholders in the use of online services in general practice.

Focused ethnographic case studies in general practice

Focused ethnographic case studies are suited to exploring a specific phenomenon in depth(68), and we will concentrate on the use of digital facilitation in general practice. Qualitative research allows us to obtain a rich contextualised understanding of the phenomena in question (digital facilitation) via different case studies chosen to be as variable as possible. We aim to explore in detail what approaches practices have taken to digital facilitation, how they have introduced and/or implemented their approaches, what has made this possible, and what the benefits and challenges have been, from the perspective of staff and patients/carers.

Sampling and recruitment of practices: Our aim is to include a maximally varied sample of 6-8 practices that will provide findings that are widely relevant across a range of primary care settings (though it should be noted that qualitative research does not provide generalizable or representative findings and our sample does not seek to provide these). Sampling will focus on two factors:

a) Experience of and/or delivery of digital facilitation using different approaches. Individual practices will be identified via the survey responses (see Figure 1), and the typology (derived from the literature review and survey) will inform the range of approaches and may include (but not be limited to) (i) Different approaches to digital facilitation and their delivery (ii) Levels of facilitation use within the practice (iii) Level of digital uptake by patients. Case study sites will necessarily be limited to those practices reporting that they use some form of digital facilitation
b) Practice characteristics (illustrated in Figure 2): (i) Location (rural/semi-rural/urban) appears to be systematically associated with variation in access to general practice e.g. older people in rural areas have poorer access to general practice services and face digital exclusion due to poor availability of broadband internet(69, 70) (ii) A range of 'Index of Multiple Deprivation' scores at practice level; Socioeconomic status appears to mediate health disparities via reduced health literacy (iii) Median age of patients; Although levels of use are increasing, older adults (≥75) are less likely to use the internet, and the 16-34 age group are the highest users of the internet (iv) List size of the practice (from a range across small (<6,000) to large (>12,000) registered patients). The typology and the survey may identify additional unanticipated factors that we will take into account when sampling, where relevant. A matrix will be populated with potential practices and used to guide our recruitment as we proceed by highlighting where we may be missing practice characteristics or approaches to digital facilitation. This is an approach that has been successfully used in a previous HSDR-funded case study by the applicants(55).

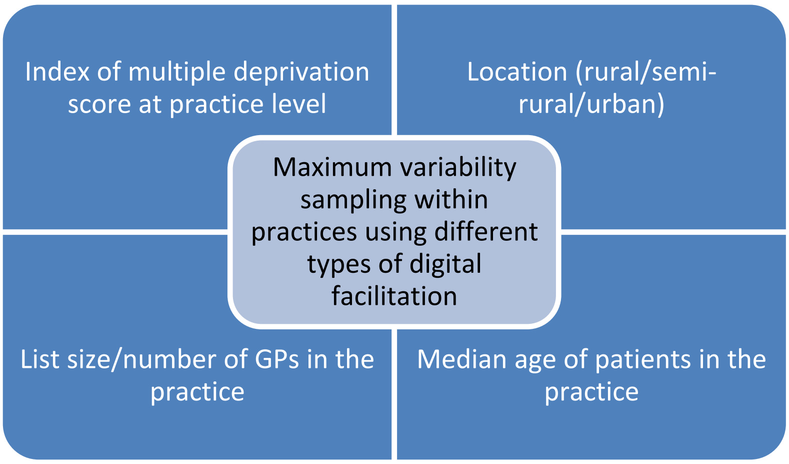

Figure 2 – Illustration of sampling considerations for the selection of case study sites

Practices will be selected from three broad geographic regions: South-west England, West Midlands, East of England/North London. Covered by the three research institutions involved (Exeter, Warwick and RAND Europe), we anticipate that these regions will provide a sufficiently wide spread of potential sites over a diverse geographical area, but further areas will be considered should we need to further vary our sample. Recruitment will be via the relevant local Clinical Research Network, and where necessary via direct approach.

Data collection: We will take a team-based approach to the focused ethnographic case studies. A researcher will spend up to 8 weeks in each practice: (i) Using non-participant observation to understand how digital facilitation occurs within the surgery, with whom, and in what ways (e.g. observation of training sessions) (ii) Attending relevant practice level meetings (iii) Identify relevant documentation for secondary analysis e.g. whether the practices themselves hold any data associated with their approach to digital facilitation. Such documentation may take the form of audits of practice website use, data on uptake of online services, or routine information regarding practice workload (numbers of consultations and personnel involved). Our intent is to identify data sources which may be relevant to consider in future research rather than to undertake a detailed analysis of workload; we would not, for example, wish to make statements on whether digital facilitation was associated with changes in workload at practice level, or for individuals or groups of staff (iv) Conducting semi-structured interviews (n=6-8 interviews) with patients, carers, GPs, practice managers and practice staff. We will ensure that our interviews include a diverse sample of participants, and will make accommodations to ensure that they are conducted inclusively.

The team will comprise three researchers, and HA, JN and EP will act as senior leads. One researcher will work with each practice for the duration of each case study (6-8 weeks per practice). Attendance by the researcher at the practice will vary according to levels of digital facilitation activities, though in the first 1-2 weeks researchers will spend time acquainting themselves with the practice staff and set-up to provide context.

Data collection will be guided by the findings of the review and the survey, and these will be used to develop case study guides and topic guides for the interviews. In case study practices observations will be described in field-notes. Where possible these will be noted contemporaneously, but where this is not appropriate they will be written up as soon as possible after the event. Interviews will include participants who are digitally engaged, and (as highlighted specifically by our patient/carer collaborators) those who are not, to ensure that the full range of relevant experiences are captured. This is particularly important with regard to the impact of digital facilitation within a practice, not only on patients and staff who are engaging digitally, but those who are not, be this through choice or lack of digital literacy.

Interviews undertaken as part of the case studies will be conducted face-to-face in an appropriately private location within the practice, or at the patient/carer's home. Interviews will be digitally recorded with the consent of participants and transcribed verbatim.

Throughout data collection, the qualitative team will produce summaries of progress and key observations and these will be discussed during a fortnightly call held for the duration of the study, following a model used in a previous study for conducting team-based focused ethnography(68).

Stakeholder interview study

In addition to the in-depth understanding of experiences of digital facilitation in practices, it is important to locate this within a broader context and understanding of the wider drivers of digital facilitation in primary care. The findings from this study have the potential to inform future policy, but to do this well it is necessary to understand both the views of wider actors and the evolving policy context(71).

Sampling and recruitment of participants: We will conduct a semi-structured interview study with 14-18 stakeholders. Stakeholders will include patient groups and key decision makers including policymakers (e.g. NHS England) and, particularly, those working in NHS digital programmes (e.g. NHS Digital Academy, Widening Digital Participation and Digital first Primary Care), professional bodies (e.g. RCGP), clinical commissioning groups and leads of federations. This will allow us to conduct a high-level exploration of how key decision makers think that digital facilitation will work and the intended consequences of its application, both positive and negative. The perspectives of these stakeholders will allow us to understand the broader national policy context and area-specific context relevant to the case study sites (e.g. through CCG and GP federation leads) and to be able to place the findings of the case studies within this context. Sampling will be purposive, targeting decision makers known to be engaged on the topic and knowledgeable. Potential participants will be invited by email to participate in the interview study and provided with an information sheet about the study.

Data collection: The topic guide will be informed by the findings of the review and the survey. Interviews will be conducted by phone or in-person depending on the preference of participants. They will be digitally recorded with the consent of participants and transcribed verbatim.

Qualitative data analysis

Data analysis will be conducted across the qualitative study as a whole. Analysis will be ongoing alongside data collection, allowing us to iteratively develop our fieldwork and interview topic guides. HA will lead analysis, with contributions from all researchers, EP and JN. Progress will be discussed via fortnightly conference calls and two analysis workshops will be attended in person by all researchers.

The team will apply thematic analysis via the following steps: (i) Reading transcripts and developing the coding frame (ii) Agreeing a final coding frame at a team analysis meeting (iii) Use the qualitative software package NVivo(72) to gather related sections of the transcripts and field notes under thematic codes and to produce subsequent reports (iv) Applying thematic analysis to each line of argument in the text, looking for outliers and negative accounts (v) Share findings with wider team, participating practices and PPI group to finalise interpretation.

Work Package 4: Synthesis and reporting (m21-25)

We will apply pragmatic approaches to synthesising the findings from all three work packages and will apply this to develop our programme theory and implementation theory.

This will involve applying triangulation and mixed methods matrices, and where relevant following data threads(73). Triangulation is a technique that involves cross verifying data from two or more sources that study the same thing, allowing validation of the findings. Mixed methods matrices offer a practical method of integrating data sources by enabling us to map out the findings and look for similarities and differences in the findings.(73)

This process will be facilitated through an internal team workshop supported by key national stakeholders and PPI collaborators. We will validate and optimise the synthesis by conducting a workshop for team members, where we will invite key stakeholders and PPI collaborators.

Our programme theory and implementation theory will provide insight into the implications for future evaluation of different models of digital facilitation in primary care. From this we will develop a framework for future evaluation which will include potential outcome measures for evaluation, the patients groups that should be of focus, how, and to what extent approaches to digital facilitation affect inequalities in access across different subgroups of patients and significant areas of costs and/or of likely cost savings that should be examined in future studies. Establishing an economic element to the framework, including costs and impacts on access inequalities, will ensure clarity of findings in the context of a resource-constrained NHS. Resulting information from both the development of theory and the framework for future evaluation will be of value to a wide range of health stakeholders, planners, patients and researchers.

The aim of the proposed research, as stated in our application, is “to identify, characterise, and explore the potential benefits and challenges associated with different models of digital facilitation currently in use in four areas of England, and to design a framework for future evaluations of the effectiveness and cost-effectiveness of such interventions”. Although we will not be undertaking an economic evaluation of any single model of digital facilitation among the variety of such models we are hoping to find, we will ensure that we explicitly and systematically identify what is known, from all of the project Work Packages, about likely cost and benefit impacts of different models of digital facilitation. We will ensure that all types of potential benefits and costs of digital facilitation are allowed for within the framework established for future evaluations. Specifically, we propose to take a societal perspective to benefits and costs and to give particular attention to including the potential impacts of digital facilitation approaches on reducing (or worsening) inequalities of access to online services.

Addressing ethical and social considerations

Improving access to online primary care services has great potential for good, but we also recognise the potential for inadvertent harm or disadvantage to sections of the population – for example to non-English speakers, to socially and economically vulnerable populations, to individuals with poor IT literacy, or to those living with substantial mental health or learning disorders. Each of our work packages will be alert to, and will address these issues. Within WP 1 (literature review) we will explicitly note and examine any existing evidence in this area which comes to light as part of our scoping review. In WP 2, our analysis of GPPS data will explore differences between patients from different socio-economic and ethnic backgrounds. In WP3 we will explicitly examine what considerations practice have invested, and what adjustments practices have made in light of potential social and ethnic disparities in uptake of online services, and these issues will be covered by the interview topic guide. Furthermore, these considerations will be explored within our stakeholder interviews. In WP 4 our synthesis and the development of theory will include an exploration of how any exacerbation of health inequalities might be captured and factored into any future evaluation.

6. Dissemination, Outputs and anticipated Impact

We will report, on time, to NIHR. Our report to NIHR will include an analysis of the current status of digital facilitation as presently implemented within primary care. This will include what is known about the likely effectiveness, cost and equity of access implications of the approaches identified, and an indication of the prevalence of various approaches in the three regions of England surveyed (East of England and North London; South-west; West Midlands). The report will provide recommendations for future development and implementation of promising approaches to digital facilitation, and will provide a framework for future evaluations to assess the effectiveness, cost-effectiveness and impact on inequalities of access to the online services, of relevant facilitation approaches within primary care settings.

We will publish in peer-reviewed journals, present our findings at relevant academic, service, and policy conferences, and engage directly with decision makers (DH, NHSE, NIHR, healthtech bodies, BMA, professional bodies) and patients through targeted dissemination of a brief research summary. We will actively engage with our PPI team during this dissemination and have budgeted to allow our patient Co-applicant (CM) and PPI lead (EC) to attend and present at a national conference and to produce a PPI focused publication. Our dissemination will account for Government healthtech strategy and ambitions(74) which we will keep under constant review, aided by our network of contacts.

Towards the end of the study, we will undertake a dissemination event in an accessible location, likely London. This will involve patients, and practice, policy, and strategic lead personnel; relevant participation and travel costs will be covered. PPI colleagues will have active involvement in the design, and delivery of the event at which we will also secure input from national leads from DH/NHS (advised by collaborator/adviser Hodgson and others). The event will inform the final reporting of our research. In line with our previous approaches(75), we have initiated development of a prototype website to host our findings. We will make this website freely and widely available across the NHS, distributing the link via NHSE NHS Digital and Patient groups to support users and potential users of primary care digital services in their uptake and use of these important services and platforms. The RCGP will provide specific support to dissemination; they offer outstanding experience in this regard through their extensive national and international networks.

7. Project / research timetable

	YEAR 1													YEAR 2											YEAR 3
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	06/20	07/20	08/20	09/20	10/20	11/20	12/20	01/21	02/21	03/21	04/21	05/21	06/21	07/21	08/21	09/21	10/21	11/21	12/21	01/22	02/22	03/22	04/22	05/22	06/22
WP1: REVIEW EVIDENCE																									
Develop search strategy	■																								
Screening		■	■																						
Data extraction			■	■																					
Summary of approaches				■	■																				
Analysis of approaches						■	■	■	■																
WP2: SURVEY OF PRACTICES/PATIENTS																									
Practice Survey																									
Practice survey design						■																			
Conduct practice survey							■	■	■																
Analyse practice survey data										■	■														
Analyse linked practice survey GGPS data												■	■	■											
Analyse GGPS data															■	■	■								
Patient Survey																									
Patients survey design						■	■	■	■	■															
Ethics approval received											■														
Conduct patient survey												■	■	■	■	■									
Analyse patient survey data																	■	■							
WP3: QUAL EXPLORATION																									
Material development									■	■															
Ethics approval received											■														
Case studies																									
Practice recruitment												■	■												
Data collection														■	■	■									
Stakeholder interviews																									
Participant recruitment												■	■												
Data collection														■	■	■									
Overall analysis														■	■	■	■	■	■	■					
WP4: SYNTHESIS/REPORTING																									
Data synthesis of all WPs																					■	■	■	■	■
MEETINGS																									
PMG: Telecom		■	■	■	■	■		■	■	■	■	■		■	■	■	■	■		■	■	■	■	■	■
PMG: Face-to-Face	■						■						■						■						
Advisory group: Face-to-face	■						■						■						■						
PPI	■					■			■			■				■					■				■
PUBLICATIONS																									
WP1										■															
WP2																			■						
WP3																					■				
WP4																									■
Final report																									■

8. Project management

A Project Management Group (PMG, Chair JC) will oversee project delivery, financial oversight and leadership. All other investigators will provide specialist input to the PMG, which will include monthly teleconferences (but including four face-to-face meetings in London). Senior study manager (JL) will manage the day-to-day coordination of the programme. The PMG will have PPI representation, and PPI coordinator (EC) will chair the PPI Advisory Group and will directly report to and from the PMG. To ensure satisfactory progress/ achievement against milestones, work package leads will report to PMG. Each work package has named lead senior researchers who will oversee all aspects of that WP and report to the PMG.

Our advisory group (Chair RCGP Marshall) will meet on four occasions, to coincide and co-ordinate with whole-team PMG face-to-face meetings.

Our PPI advisory group will meet on seven occasions (see project timetable).

A cost-efficient approach will be adopted to reporting – each WP will incorporate drafting of at least one publishable paper and a chapter for the final report, thus minimising a prolonged write-up phase at the end of the work and expediting reporting. WP leads will be accountable for that delivery and reporting which will thus be continuous through the lifetime of the research.

9. Ethics / Regulatory Approvals

Work packages 1, 2 and 4 involve secondary data analysis and do therefore not require ethical approval. The remaining element of WP2 involves a survey of healthcare providers which is not intended to change practice or patient care and as such, the Health Research Authority have specifically advised that ethical approval is not required. For work package 3, a detailed research protocol adhering to the UK Framework for Health and Social Care Research will be submitted for review by the appropriate research ethics committee and health research authority approval. Usual informed consent arrangements will be put in place for the involvement of patients and staff. We will work with the PPI group during this process, particularly with writing patient information leaflets. All data will be stored in an anonymised form on a secure server. Research governance and monitoring will be coordinated by the host (NHS Cambridgeshire and Peterborough Clinical Commissioning Group).

10. Patient and Public Involvement

Public and patient involvement will be led by Dr Emma Cockcroft with patient co-applicant, Ms Chris Marriot. We have worked with a core patient and carer advisory group involved in the development of this application. Active Involvement of patients and carers will continue throughout the project, with meetings held at key stages to inform and shape the work. We will also capitalise upon other links and contacts where appropriate. Detailed plans of involvement are outlined in section nine of the main form.

11. Project / research expertise

We are an expert team, with many relevant publications from earlier research and with high-level methodological expertise. Two expert academic groups (Exeter and Warwick) will work with the RAND Europe, a research organisation that delivers high quality research and analysis to inform policy and decision making across major areas of public policy. Numerous members of the team have worked together on related successful projects focusing on patient experience of care (NIHR-funded IMPROVE programme grant JC, GA, JN) and on alternatives to face-to-face consultations (NIHR-funded Alt-Con project HA, JC; and NIHR-funded Telefirst project GA, JN; CSO Scotland funded ViCo HA, JC) and an ongoing NIHR study on online booking of appointments in primary care (HA, GA, JC). These studies have already resulted in a large number of publications including publications in the Lancet and BMJ. Our ambition as a team is to deliver a high quality piece of work of relevance to the NHS and to patients/carers and staff within time and on budget.

Co-applicants

John Campbell, professor and senior academic GP; practising clinician; extensive experience of NIHR-funded research (HSDR, HTA); 370 academic publications. Recent adviser to NHSE/DH/CQC/Health Foundation. Previously member, HSDR panel and board; currently NIHR policy adviser. He will provide overall leadership and oversight of the project.

Jon Sussex is an experienced health economist and health policy researcher who has worked on many projects concerning the take-up of innovations in healthcare. He is a Senior Research Leader at RAND Europe and will lead the RAND Europe team and WP1 and WP4 for the research collaboration as a whole.

Gary Abel is a statistician and health services researcher bringing a wealth of experience in analysis of patient experience survey data (~40 publications) and other routine data. He will provide leadership for WP2 supervising Mayam Gomez-Cano and providing oversight for the survey delivery. He will also assist JC in overall delivery of the project.

Helen Atherton is a primary care health services researcher who brings expertise in digital service delivery in primary care (~40 publications). Helen has a particular experience in qualitative research and will lead WP3, providing oversight for the delivery of the qualitative exploration and supervising the wider qualitative team.

Emma Pitchforth is a health services researcher bringing a wealth of understanding of health service organisation and delivery across diverse healthcare settings, including in relation to access and inequalities. She brings methodological experience in qualitative research and scoping reviews and with particular knowledge of the broader health policy context in the UK, will lead on the stakeholder interview element of WP3.

Jennifer Newbould is a Research Leader in RAND Europe, with substantial experience in qualitative research techniques, and is especially interested in patient experience and primary care. Jennifer has worked on numerous health services research projects in primary care including as Project Leader on the recent NIHR project exploring Telephone First approaches in primary care. Jennifer will provide inputs and advice across all work packages and will lead the RAND Europe inputs to WP3.

Jeff Lambert is a psychologist and digital health researcher who recently developed and led a trial of a digitally delivered mental health intervention. He has developed and evaluated several digital interventions targeting physical and mental wellbeing (e.g. NIHR HTA Ecoacher).

Chris Clark is a senior lecturer in primary care, former NIHR clinical lecturer, and current member of RCGP rural health forum. He is a GP in remote practice setting, and will advise on remote/rural practice/organisational issues and contribute to all project phases.

Emma Cockcroft is a member of the PenCLAHRC Patient and Public Involvement Team at University of Exeter Medical School. She is skilled in planning and facilitating patient involvement in research. She will support the patient and public involvement, attend research team and project advisory group meetings and work with patients and carers to inform key stages of the project.

Christine Marriott is an active and long-term member of the PenCLAHRC Public Involvement Group (PenPIG). She will provide lay expertise, including her own experiences of primary care. She will attend research team and project advisory group meetings and work with a larger patient /carer group at key points during the project.

Research Staff

Mayam Gomez-Cano (Exeter) is a Postdoctoral Research Associate statistician with experience of analysing patient experience data, including GP Patient Survey data and will conduct all analysis of data for WP2 and contribute to the related publication. M7-18.

Carol Bryce (Warwick) is a sociologist and qualitative researcher with experience of conducting qualitative case studies in use of digital communication in healthcare. Carol will conduct the focused ethnographic fieldwork at the West Midlands sites and will contribute to analysis of the qualitative data, and related publication. M9-21

Brandi Leach (RAND Europe) is an Analyst working in innovation and health policy. Her work addresses improving primary care delivery through innovative models of care and modernising the healthcare workforce. She has experience in programme evaluation and both quantitative and qualitative research methods. She will contribute to WP1, WP3 and WP4. M1-25

Jack Pollard (RAND Europe) is a health economist and Analyst at RAND Europe with experience in health services research and a particular interest in health economic analysis. Jack also has experience in qualitative health services research methods and in designing and programming surveys. Jack will work on WP2, WP3 and WP4. M6-25

Ellie Kingsland will provide research admin support (previous NIHR research administrator on numerous projects). M1-25

Collaborators/Advisors

We already have a relationship with two existing primary care organisations who have informed the development of this application and will play an ongoing advisory role.

Lea Valley Health (Richard Moore, Business Manager) is a federation of eight independent GP Practices in Lower Lea Valley Hertfordshire serving a growing population of over 75,000 patients. Lea Valley has appointed a 'Digital Facilitator', and, along with RAND Europe, highlighted the need for high quality research evidence in the area of supporting patient and staff access to and uptake of NHS digital and online services.

Beacon Medical Group (Chief Operating Officer, Claire Oatway) is a partnership combining five pre-existing practices in the Plymouth and South Hams Area (total 43,000 patients). This Group is recognised nationally as a leading centre for primary care innovation and was a rapid test site for the Primary Care Home initiative. Whilst actively engaged in providing and supporting NHS digital services, Beacon have not, as yet, appointed a digital facilitator.

We have already agreed advisory board membership for representatives of NHS England and the RCGP. Phillipa Hodgson is the Digital Delivery Lead at NHS England responsible for delivering the NHS App. Prof Martin Marshall is the Vice Chair (External Affairs) for the RCGP and Professor of Healthcare Improvement at UCL. In addition, Jennifer Estherby (Innovation Lead for HealthTech in Barclays Bank’s Digital Eagles initiative) has agreed to join our advisory board, to provide valuable insight and guidance about digital facilitation beyond health care. Following funding agreement we will approach a senior mixed-methods researcher to provide external research methods advice.

12. Success criteria and barriers to proposed work

We will measure the overall success of our research programme against the achievement of the timely and complete delivery of our stated programme objectives.

However, the proposed programme of research does carry some potential barriers:

1. Research will be carried out across several geographical sites (Exeter, Warwick and Cambridge). Careful project management will therefore be critical to the success of this programme. This will be facilitated with monthly PMG meetings which will include WP leads and regular reviews against their deadlines.
2. Our Scoping Review, like all such reviews, has to find a balance between breadth, so as not to miss important material, and practicality, to avoid being swamped by large quantities of literature that proves ultimately not to add value to the research. Our team has considerable experience of literature reviewing and finding that balance. Success criteria for the scoping review include: finding sufficient literature about facilitation of patients’ and the public’s use of primary care online services; finding relevant literature from other sectors within the boundaries of the resources allocated to the review; and identifying from these data a clear typology of digital facilitation in primary care.
3. Work package 2 will be considered a success if more than 250 practices respond to the survey. There is, however, a risk that survey response rates will be lower than the 50% required to achieve this target and if they are considerably lower, the generalisability of the findings may be threatened. We have designed our approach to maximise response rate, and in the situation where fewer than 250 practice respond we will continue to work closely with the CRN to increase response making use of personal contacts.
4. There is a risk that we will not be able to recruit case study sites, or that sites will be too similar. For this reason we estimate that we will recruit 6-8 sites to give us flexibility around activity. In addition, the focused ethnographic model allows us to be flexible about how long

we spend in a practice, spending longer where activity is high, and in practices with low activity spending less time whilst exploring why this is and what it may mean.

5. Conducting team-based focused ethnography requires co-ordination with regard to recruitment, data collection and data analysis, and it is necessary to ensure that there is adequate oversight and progress. We will ensure this by a)following a previously used (and published) model for conducting focused ethnography, this same focused ethnography was project managed by HA, and b) having senior co-applicants at each site overseeing each stage and ensuring that milestones are being met.

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