Project initiation document FINAL, 1st June 2020

Remote by Default

Summary

This 18-month study, funded by ESRC UKRI COVID-19 research fund, will run from 1st June 2020 to 30th November 2021. The aim is to explore and support the rapid shift from face-to-face to remote (telephone and video) consultations in primary care. It has three components: a study of clinical interactions and decision-making ('micro'); four locality-based organisational case studies of new models of care ('meso'); and a study of how digital innovation can support NHS infrastructure and vice versa ('macro'). The methods are mainly qualitative (interviews, virtual ethnography, analysis of documents, micro-analysis of conversations) and designed to inform action research.

The key deliverables are:

1. At least two evidence-based assessment tools: qualitative (questions for remote assessment of breathlessness) and quantitative (a COVID-19-specific early warning score).
2. Transferable lessons about how to achieve rapid spread and scale-up, spread in real time through our extensive intersectoral networks.
3. Strengthened infrastructure for supporting digital innovation in the NHS.

Full title

Remote-by-Default Care in the COVID-19 pandemic: addressing the micro-, meso-, and macro-level challenges of a radical new service model

Dates

1st June 2020 to 30th November 2021.

Lay summary (from grant application)

Because COVID-19 is so contagious, the way the NHS works has changed dramatically. For the first time since 1948, you can't walk into a GP surgery and ask to be seen. You must apply online, phone the surgery or contact NHS111. You may then get a call-back (phone or video) from a clinician, or a face-to-face appointment, possibly in a 'hot hub'.

These changes to what used to be the family doctor service are radical, frightening and difficult. They cut to the core of what it is to care and be cared for, and what 'good' and 'excellent' health services look and feel like. Will the doctor be able to assess you properly by video or phone?

We are an interdisciplinary team specialising in the study of complex, technology-supported change in health and care settings. Using a variety of methods, we want to do three things:

- Develop tools to help clinicians assess people effectively by phone or video;
- Support the change process through 'action research' – that is, working with GP teams to collect relevant data, analyse it together and support its rapid use;
- Using collaborative improvement techniques, strengthen the supporting infrastructure for digital innovation in the NHS.

Background and rationale

The shift from in-person to remote-by-default consulting (described from the patient's perspective in the lay summary above) is the fastest and most extensive scale-up of a radical service innovation since the NHS was established in 1948. Clinicians are faced with a triple novelty: a new disease (uncertain, serious, contagious), a new way of interacting with patients (phone, video) and major changes to workflows and clinical pathways.

Lives will depend on getting the right patients to hospital at the right time to ensure benefit from critical care without overwhelming the hospital with referrals. This requires accurate identification of cases for referral and monitoring of those with moderate disease. Success is not just about new technologies but also about their clinical safety, how we make them work, and whether NHS infrastructure can accommodate them at speed and scale.

We know from health systems research that disruptive technological innovation, especially in heavily institutionalised environments, is complex, uncertain, challenging and risky. COVID-19 is redefining what it means to be a patient, a doctor/nurse/healthcare assistant etc, what it means to act professionally and what an accessible service is.

The knowledge gap is interdisciplinary. It involves clinical questions (how should we assess and manage COVID-19?), but also operational and socio-technical ones (how can we overcome the many interacting barriers to change?) and policy-related ones (e.g. how can policy and regulatory bodies support innovation?).

Scientific summary

AIM

In the context of COVID-19, to address micro- (technical tools, clinical techniques), meso- (organisational change) and macro (national infrastructure) aspects of a remote-by-default service model in primary care.

OBJECTIVES

1. Validate and embed evidence-based tools for remote assessment and monitoring.
2. Support local implementation teams to overcome technical, operational and professional barriers and implement remote-by-default service models rapidly and at scale.
3. Generate and apply insights on how NHS infrastructure can better support – and be supported by – digital innovation in a time of crisis.

RESEARCH QUESTIONS

1. How can technology support assessment and monitoring of patients at a distance?
2. How can we achieve rapid spread and scale up of remote-by-default models of primary care?
3. What insights can we glean from this time of crisis that will help build a more resilient NHS?

OUTLINE METHODS

1. TOOLS: Qualitative research to develop instruments followed by quantitative validation studies.
2. IMPLEMENTATION AND SCALE-UP: Four contrasting case studies in different localities, nested in an over-arching analysis of national policy. Action research (informed by interviews, ethnography, documents, datasets) by virtual researchers-in-residence.
3. WORKSHOPS AND SCENARIO-TESTING: Involving policymakers, regulators, professional bodies, industry, patients/citizens, to identify ways to strengthen infrastructure for rapid change.

Outline methods

Work package 1: Development of remote assessment tools (leads: CP, TG)

1a: Breathlessness assessment tool (CP, LS, TF, SW)

- We will use qualitative methods to interview approximately 40 front-line GPs, Nurse Practitioners and other staff assessing patients with query COVID symptoms, using semi-structured interviews and structured vignettes (representing patients with different kinds of illness), and 20 patients/carers who have experienced key symptoms of breathlessness/ fatigue during the pandemic period
- We will use conversation analytic methods to draw out subtle aspects of clinical intuition from analysis of 20 recorded video consultations
- We will produce and test questions for GPs to ask patients about their breathlessness

1b: RECAP early warning score (TG; PT, MD, SW)

- Following our rapid reviews of the literature of prognostic signs and symptoms and on the NEWS2 score (already complete and on the https://www.cebm.net/covid-19/ website), we are developing a COVID-19-specific early warning score that uses items that can be assessed remotely
- We will test face validity and refine this tool with a Delphi panel of 70 GPs.
- After building the score into GP computer templates, we will validate the predictive accuracy of each item (with hospital admission, ICU admission and death as endpoints) using electronic record analysis on a sample of >1000 by Ardens.

Work package 2: Implementation / scale-up in 4 case studies (SS, RR, RB, AR, JW)

Using case study methodology, we will study implementation and scale-up of remote-by-default in four sites: 2a = Greenwich (site lead: RR, AR); 2b = Oxford (JW, SW, AR); 2c = Plymouth (RB); 2d = Pontyprydd (JW, AR). These represent maximum diversity in setting, demography, historical path-dependencies, technological maturity and how the model is understood and implemented on the ground. All are currently struggling with how to establish, at pace, the digital infrastructure for electronic triage and telephone and video consultations, the material and human infrastructure of 'hot hubs' (face-to-face clinics which back up remote services), and key care pathways.

We will be technology-agnostic (i.e. study what local teams use rather than setting out to 'test' particular technologies. We will use a combination of methods in a pragmatic, reflexive and theory-informed way to generate data, synthesise and share it with participating teams, and inform both team- and wider system learning in the action research cycle. Data foci will include (for example):

- Challenges of using the tools developed in WP1 for remote clinical assessment of COVID-19 patients.
- Challenges of remote management of patients with non-COVID conditions during the pandemic, including supporting self-management and virtual consultations in long-term conditions.
- Challenges of operationalising the in-practice workflows (e.g. total triage).
- Challenges of establishing and interfacing with hot hubs.

We will following an empirical approach we have used successfully previously, extending it as appropriate, using ethnographic methods, NASSS-CAT tools (see Appendix 1), and the action

research cycle to generate and inform progress in rich, mixed-method longitudinal case studies. Our analysis will integrate multiple levels, from micro- (clinical encounters) to meso- (organisational) and macro (e.g. professional and regulatory context). Data sources will include ethnographic field notes (~100h per case), interviews (both informal scene-setting interviews and more formal, audiotaped semi-structured and narrative interviews, ~30 per case), documents (e.g. plans, policies, communications, standard operating procedures, leaflets – 20-30 per case), quantitative metrics (e.g. demand and capacity statistics) and material artefacts (e.g. devices, software applications, websites). Data sources will be analysed descriptively before being integrated into an emerging narrative of the case. 'Elite' interviews with national stakeholders (~20) and national- documents such as policies and implementation plans (~20) will provide cross-cutting contextual detail.

Most of this will be undertaken using a 'virtual researcher-in-residence' model. We will follow key principles for ethnographic study of digital infrastructure, including: surface master-narratives; surface invisible work (e.g. by low-grade staff); study small scale encounters in detail; study workarounds (e.g. 'tinkering' to deliver a service despite local contingencies); study repair and maintenance work; and study paradoxes (e.g. why a 'simple' change makes the whole system unworkable). We will follow Marcus's methodology for multi-sited ethnography and also apply 'trace ethnography' techniques to capture ephemeral digital phenomena – including 'walk-through' (show me how you use an application), 'digital go-along' (take me on a guided tour of the application/device, thinking aloud as you go) and 'scroll-back' (co-analyse a digital thread with me).

We will follow repeated iterations of the action research cycle, using the NASSS framework and NASSS-CAT tools to structure data collection, presentation and synthesis. Data will be analysed and synthesised into an emerging narrative of each case site, and used to inform the action research cycle. Lead site researchers will share insights for cross-case analysis.

Work package 3: Infrastructure strengthening (SS, with AAN and all core team)

Our work on digital innovation has demonstrated the necessity of addressing infrastructural issues through intersectoral dialogue and facilitation. We will lead a theory- and data-driven change effort involving policymakers, regulators, professional bodies, industry, patients and citizens with a view to overcoming the numerous interacting issues (large and small) that can stymie the success of digital projects. These can include, for example, regulatory barriers, local policies (what is sometimes known as the "locked-down computing environment" of the NHS), professional resistance to change (e.g. from a Royal College), supply chain issues, and technical bugs and breakdowns which need a national-level response rather than just local tweaking. We will maintain dialogue across national-level stakeholders, providing individual facilitation and pulling together workshops and collaborative problem-solving teams as appropriate. Provisionally, four major workshops are planned across the study period: one in Plymouth, one in Oxford and two at Nuffield Trust (all may be virtual).

Data collection will be guided by the realities of the unfolding pandemic, which cannot be predicted in advance. We will focus on aspects of the COVID crisis where we can add value and which play out (perhaps in different ways) in all case studies. We will follow complexity and co-design principles (e.g. building alliances and shared understanding; supporting joint projects). Throughout the study, we will build our links with industry (e.g. through collaborative working to develop and implement solutions), policy (e.g. through our existing advisory roles and 'elite' interviews), NHS and social care staff (e.g. by supporting the case studies) and patient/public bodies (e.g. Ada Lovelace Institute for public deliberation on digital issues).

Deliverables

DELIVERABLE 1: EVIDENCE-BASED TOOLS

We will produce two tools which are crucial to remote assessment of COVID-19 patients:

- Breathlessness assessment questions. These will help distinguish people who are perilously short of oxygen from those who have milder lung involvement and those who are anxious (e.g. overbreathing). We will work with NHS111, EMIS and others to embed these questions into assessment algorithms. If time, we will tackle additional symptoms with potential prognostic significance e.g. fatigue.
- RECAP (REmote Covid-19 Assessment in Primary care) will be a COVID-19-specific early warning score based on items measured remotely. Once validated, it will be built into GP computer templates nationally.

DELIVERABLE 2: RAPID AND SCALE-UP OF THE REMOTE-BY-DEFAULT SERVICE MODEL

Teams working under pressure need support to identify which data to collect, collate and analyse to make sense of what is happening, and revise plans. Using action research (plan → act → reflect → observe - repeat) via embedded virtual researchers-in-residence, we will a) support change efforts in four case study sites and b) generate transferable lessons about how to achieve rapid spread and scale-up, and spread these lessons in real time through our online networks.

DELIVERABLE 3: STRENGTHENED INFRASTRUCTURE FOR DIGITAL INNOVATION

Innovation in the NHS is not just about developing new technologies. It's also about optimising the infrastructure (technical, regulatory, material, professional) to which technologies must connect. This will be achieved by facilitating intersectoral dialogue and collaboration to bring industry, policy, clinical and operational perspectives to bear on complex problems.

Management and governance

This 18-month study, which has three work packages – WP1 (two sub-studies) to develop clinical tools, WP2 (four locality-based sub-studies) to look at implementation of service models, and WP3 to consider the national infrastructure and overall lessons, will be conducted at pace with a view to generating and publishing rapid lessons.

The study is sponsored by the University of Oxford. TG is the chief investigator and guarantor. Sub-contracts are being issued to the University of Plymouth and Nuffield Trust.

Each work package will be led by a named individual (see underlined initials on pages 3-4). The four case studies will be coordinated and overseen by SS, who will also lead the national work package. The research leads, whose names and contact details are listed in Appendix 2, will meet monthly (chaired by TG or SS) to review progress and exchange updates; a brief report will be submitted to the chair of the External Advisory Group. A senior research manager (initially Dr Sara Ward, and subsequently another postdoctoral researcher with research management experience), will support and guide the management and governance of all work packages and the study as a whole.

An external advisory group, with a lay chair, Anica Alvarez Nishio (AAN), will meet every four months. Its membership, which includes representatives from different sectors as well as cross-membership from the patient advisory group (see next section) is listed in Appendix 3 along with its draft terms of reference. Two weeks prior to the External Advisory Group meeting, a narrative summary of progress will be sent to all members. Following the external advisory group, the core

team will meet to reflect on its feedback and a summary of actions and follow-up points will be appended to the minutes and circulated.

Public registration

As requested by HRA and following their guidance for this purpose, the study will be registered at a WHO listed registry to ensure rapid access to details for COVID-19 related research. Many such registries are tailored for clinical trials but ClinicalTrials.gov is hosting a variety of studies and this programme will be registered at the University of Oxford according to local processes.

Patient / lay involvement

The Remote By Default Patient Public Involvement and Engagement Group (RBD/PPIEG) will include a range of stakeholders including service users and representatives with lived experience of Covid-19 and remote care, and will reflect the diversity of experience in the community. PPIE is an integral part of producing research which is policy relevant and of public benefit. Interaction between researchers and the public will facilitate a process of two-way learning to improve the overall quality of research and the policy it informs.

Given the timeframe under which this study will operate, the main responsibilities of the RBD/PPIEG will be to help refine research by providing rapid response to queries as they arise and to play a key part in communicating and clarifying the intentionally emergent nature of this study to stakeholder organisations and the wider public.

The PPIEG will be formed and chaired by Anica Alvarez Nishio who also chairs the External Advisory Group. This group will be invited to develop working methods to suit, taking account of the following principles:

- they will meet regularly (virtually) at intervals to be decided by them
- members of the PPIEG will be invited to get involved with particular work packages as a 'critical friend'
- they will receive and discuss the report to the EAG every four months
- they will be encouraged to table items for the EAG
- they will be consulted on an ad hoc basis on aspects of the study that affect patients and citizens
- each member will receive honoraria and expenses if required

Ethics approvals

Approval was obtained from East Midlands – Leicester Central Research Ethics Committee on 4th May 2020 (provisional and final approval granted on same day after brief amendments). That approval covers all of work packages 2 and 3.

Work package 1a includes a component to video-record consultations, which is currently (late May 2020) being submitted as an amendment to the same committee.

The RECAP data linkage study is covered by a separate NHS Research Ethics approval (IRAS Project ID: 283024), sponsored by Imperial College London and with chief investigator Professor Brendan

Delaney, which received approval from Greater Manchester East Research Ethics Committee on 20th May 2020.

Dear Prof Greenhalgh

Study title:	**Scaling up Remote-by-Default Models of Care to Help Reduce the Spread of COVID-19**
REC reference:	**20/EM/0128**
IRAS project ID:	**283196**

The Research Ethics Committee reviewed the above application at the meeting held on 01 May 2020. Thank you and Dr Alex Rushforth and for attending to discuss the application.

Ethical opinion

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

Summary of budget commitments

The overall budget for this study from UKRI is £750,000 over 18m, supplemented by reallocation of staff from NIHR BRC and a 6-month extension of a Senior Investigator Award from Wellcome Trust (£82,000).

Taking account of Wellcome and BRC funds, the Oxford staff budget covers salaries of Greenhalgh (40%), Shaw (20%), Pope (10%), Rushforth (50%), Wherton (50%), Seuren (50%), Wieringa (50%), Finlay (40%), Hussain (45%), Ward (60%) and Papoutsi (25%), as well as a total of 1.3 FTEs in various administrative support and data quality roles (some for just the first 9 months). The Plymouth budget covers Byng (5%), a postdoc to be appointed (50%) and administrative support (10%). The Nuffield budget covers 54 consultancy days from Rosen with infrastructure support.

Our non-staff costs, which are mostly allocated to Oxford but can be claimed by all project members, are allocated as follows:

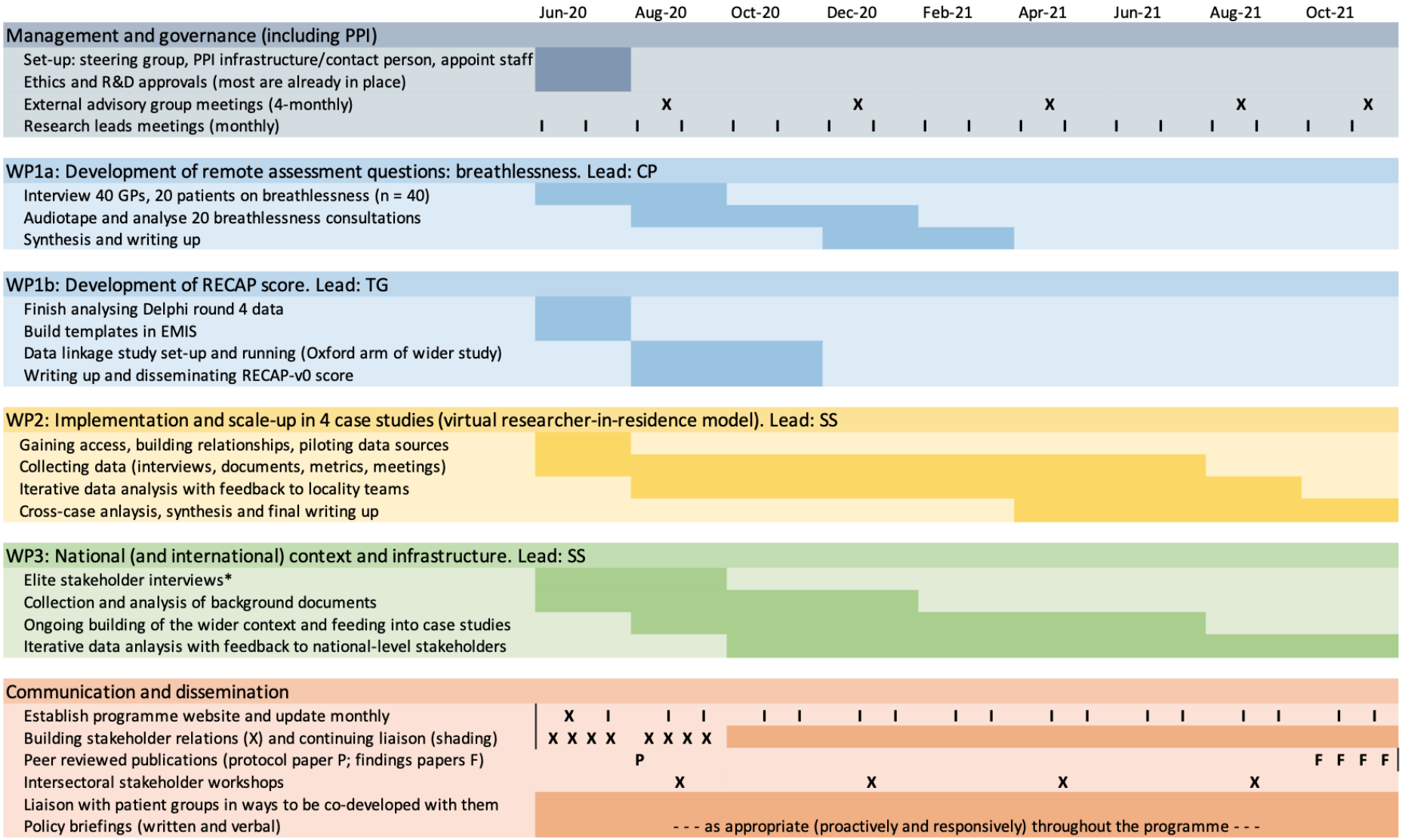
- Data linkage: infrastructure, access to HES data, EMIS templates, quality control £50,000
- Communications, website, open access publications: £18,500
- Travel and subsistence: £3500
- Transcription costs: £1675
- PPI, external steering group and lay chair: £15,000
- Computers and software: £3000

We have permission from the funder to vire across budget codes if a reasonable case can be made, and to backdate any salaries to before the official start date if appropriate.

Timetable

A timetable of key dates is given in Appendix 5.

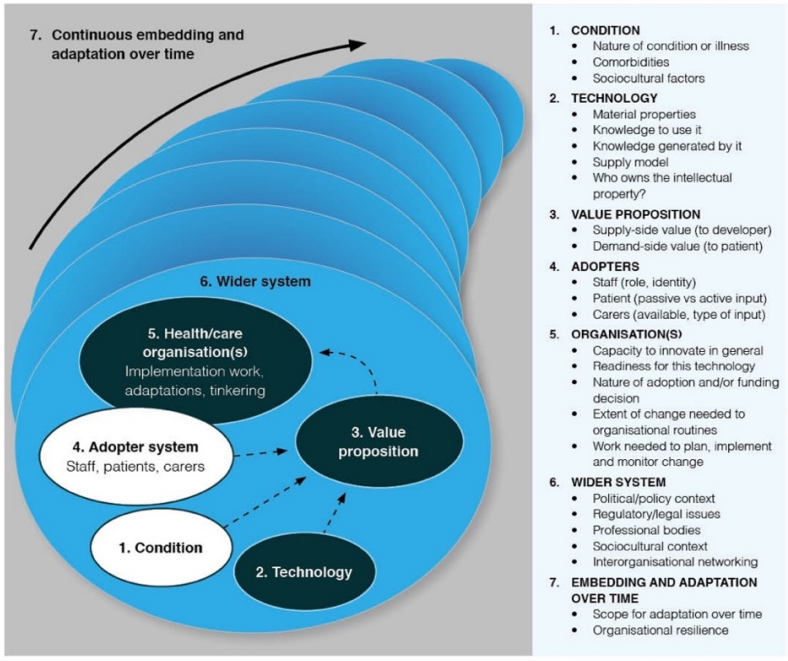
GANTT CHART FOR REMOTE BY DEFAULT



APPENDIX 1: The NASSS Framework and NASSS-CAT tools

The change effort in the NHS during the COVID crisis is an exercise in navigating a hypercomplex system. Complexity has been defined as *"a dynamic and constantly emerging set of processes and objects that not only interact with each other, but come to be defined by those interactions"*. Complex systems have fuzzy boundaries; their interacting agents operate on the basis of internal rules that cannot always be predicted; they adapt, interact and co-evolve with other systems; and actions and events have unintended consequences. Complexity is a feature of the system(s); intervention and context are inter-related and reciprocally interacting.

We applied the principles of complex systems to develop the NASSS (nonadoption, abandonment, and barriers to spread, scale-up and sustainability) framework (Figure) with the aim of generating rich case studies of technology-supported change in health and social care. A literature review was conducted alongside six diverse case studies, which were explored longitudinally for three years using ethnography, interviews and document analysis. The NASSS framework (below) allows researchers to surface and explain the multiple forms and manifestations of project complexity. It consists of seven domains: the condition or illness, the technology, the value proposition, the adopter system (intended users), the organisation(s), the wider system (especially regulatory, legal and policy issues) and emergence over time. Each domain, and the sub-domains within it, may be simple (few components, predictable), complicated (many components but still largely predictable) or complex (many components interacting in a dynamic and unpredictable way).



Note: Adapted from Greenhalgh T, et al. 'Beyond adoption: a new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the scale-up, spread, and sustainability of health and care technologies'.[1]

We worked with Professor Harvey Maylor (a Professor of Management) to extend NASSS with a complexity assessment tool (CAT) through which project teams can assess, monitor and proactively manage complexity, on the basis that *"[u]nderstanding and actively managing project complexity has the potential to identify better processes, staffing, and training practices, thereby reducing unnecessary costs, frustrations, and failures"*. The NASSS-CAT tools, which systematically assess complexity in the seven domains described in the previous paragraph, were developed through a series of co-design workshops with frontline staff, patients and technical designers, and are currently being adapted from word and pdf documents to electronic format.

APPENDIX 2: CORE RESEARCH TEAM

Name / Affiliation	email	Role in project / Disciplinary background	Work package
Prof Trish Greenhalgh University of Oxford	trish.greenhalgh@phc.ox.ac.uk	Principal Investigator Academic GP and social scientist	All Leading 1b
Prof Sara Shaw University of Oxford	sara.shaw@phc.ox.ac.uk	Co-Investigator Social scientist	All Leading 2, 3
Prof Catherine Pope University of Oxford	catherine.pope@phc.ox.ac.uk	Co-Investigator Social scientist	1a
Dr Rebecca Rosen Nuffield Trust	Rebecca.Rosen@nuffieldtrust.org.uk	Co-Investigator GP / policy	3, 2 Greenwich
Prof Richard Byng University of Plymouth	richard.byng@plymouth.ac.uk	Co-Investigator Academic GP / policy	2c, 3
Dr Lucas Seuren University of Oxford	Lucas.seuren@phc.ox.ac.uk	Researcher Conversation analysis	1a
Dr Teresa Finlay University of Oxford	teresa.finlay@phc.ox.ac.uk	Researcher Social scientist (nursing)	1a
Dr Joe Wherton University of Oxford	Joseph.wherton@phc.ox.ac.uk	Researcher Technology-supported change	2 Wales Oxford
Dr Alex Rushforth University of Oxford	Alexander.rushforth@phc.ox.ac.uk	Researcher Sociology	1a, 2 Wales Oxford
Dr Chrysanthi Papoutsi University of Oxford	chrysanthi.papoutsi@phc.ox.ac.uk	Researcher Social science of technology	2, 3
Dr Sara Ward University of Oxford	sara.ward@phc.ox.ac.uk	Research manager Biologist by training	All
Dr Paul Thompson University of Oxford	paul.thompson@psy.ox.ac.uk	Researcher Statistician	1b
Dr Sietse Wieringa University of Oxford	Sietse.wieringa@kellogg.ox.ac.uk	Clinical researcher Academic GP, management	1a, 2
Laiba Husain University of Oxford	Laiba.husain@phc.ox.ac.uk	Research assistant Psychology (pre-PhD)	1a, 1b

Plus

Dr Merlin Dunlop Ardens (subcontractor)	merlin@ardens.org.uk	Develop RECAP template GP and software developer	1b
Anica Alavarez Nishio Freelance	a.alvareznishio@aya.yale.edu	PPI/E and strategic input Background in arts / editing Chair of external advisory group	All

A wider network of national and local stakeholders (individual and organisations) will be developed during the early phase of the study.

APPENDIX 3: EXTERNAL ADVISORY GROUP

Terms of Reference
The draft terms below will be reviewed at the first meeting and amended if needed.

The **Remote By Default Advisory Group (RBD/AG)** has been formed to provide robust, relevant, proportional oversight of the RBD project. It will be comprised of professionals with strong clinical, digital communication, faith-based and governance experience and will meet four-monthly to monitor progress against milestones and budgets, review outputs and provide advice (including but not limited to taking a view on ethics and governance issues). The RBD/AG will be chaired by a lay member, who will also chair the RBD/PPIEG (see below), thus providing both independent oversight and clear lines of communication between all groups. Members of the RBD/AG also provide important connections to stakeholder organisations, especially in the healthcare and policy sector.

Members RBD/AG *(will be updated when full membership confirmed)*

Anica Alvarez Nishio (Chair)	Independent consultant	a.alvareznishio@aya.yale.edu
Minal Bakai	NHS England	minal.bakhai1@nhs.net
Kieran Collison	Chair, Oxfordshire CCG	k.collison@nhs.net
Brendan Delaney	Professor, Imperial College	b.c.delaney@imperial.ac.uk
James Ford	Mayer Brown (cross-border compliance; risk management; international trade)	jamesford16@gmail.com
Jean Gaffin	CQC; telecommunications and the elderly; chronic pain, end-of-life	jean.gaffin@btinternet.com
Charles Lucas	Equities and Capital Markets	charleslucas01@btinternet.com
To be appointed	AHSN rep	
To be appointed	Nursing contact	

APPENDIX 4: PATIENT-PUBLIC INVOLVEMENT AND ENGAGEMENT GROUP

Members of RBD/PPIEG [only names of those who have actively agreed are listed below; recruitment is ongoing]:

Anica Alvarez Nishio (Chair)	Independent consultant	a.alvareznishio@aya.yale.edu
Zainab Al-Rawni	Global health, digital communications expert; Oxford University; lived Covid experience (self and father)	zainab.al-rawni@ndm.ox.ac.uk
Varsha Dodhia	Central and NW London NHS Trust: project management, community mental health, interfaith expertise	Varsha.dodhia@gmail.com
Mo Mohammed	Works in technology; uncle was a doctor who died of Covid-19 and has lost several family members in Nigeria	mmuk2009@gmail.com
John Taylor	FIBMS, Former Governor Bolton NHS FT	boltonuk@gmail.com
Others will be added as the work packages and case studies develop		

APPENDIX 5: TIMETABLE OF KEY DATES

All meetings to be held on Mondays @ 11.00 by default

Date	Type
June 2020	
1st	Launch / orientation meeting (core research team only)
July 2020	
6th	Research leads meeting (core research team only)
23rd	Interim report circulated to external advisory group (EAG)
August 2020	
3rd	**External advisory group: meeting 1**
5th	Provisional date for Plymouth workshop
Sept 2020	
7th	Research leads meeting Brief report to chair of EAG
Oct 2020	
5th	Research leads meeting Brief report to chair of EAG
Nov 2020	
2nd	Research leads meeting
26th	Interim report circulated to EAG
Dec 2020	
7th	**External advisory group: meeting 2**
10th	Provisional date for Nuffield workshop
Jan 2021	
11th	Research leads meeting Brief report to chair of EAG
Feb 2021	
1st	Research leads meeting Brief report to chair of EAG
Mar 2021	
1st	Research leads meeting
25th	Interim report circulated to EAG
April 2021	
5th	**External advisory group: meeting 3**
7th	Provisional date for Oxford workshop

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May 2021	
3rd	Research leads meeting Brief report to chair of EAG
June 2021	
7th	Research leads meeting Brief report to chair of EAG
July 2021	
5th	Research leads meeting
22nd	Interim report circulated to EAG
August 2021	
2nd	**External advisory group: meeting 4**
Sept 2021	
6th	Research leads meeting Brief report to chair of EAG
8th	Provisional date for Nuffield workshop
Oct 2021	
4th	Research leads meeting Brief report to chair of EAG
21st	Final report circulated to EAG
Nov 2021	
1st	**External advisory group: final meeting (5)**
30th	End of project