NIHR | Public Health Intervention Responsive Studies Teams

An Evaluation of modifications to NHS Health Checks in Derbyshire

Project summary

Study title	Evaluation of Live Life Better Derbyshire Health Checks with Online booking and text reminders for Wellbeing (ELBOW)
Planned study period	19 months (September 2023 to March 2025)
Study design	Mixed methods
Research aim/s	To investigate the impact of modifications to NHS health check invitation and session delivery on health check attendance, outcomes, and resources. Secondly, to explore staff and client experiences of the modifications made to health check practice.
Chief Investigator	Professor Katherine Brown, University of Hertfordshire
Co-Chief Investigator	Professor Julia Jones, University of Hertfordshire
Co-Investigators	Professor Katherine Brown, University of Hertfordshire Dr Laura Kudrna, University of Birmingham Dr Neil Howlett, University of Hertfordshire Dr Katie Newby, University of Hertfordshire Dr Adam P Wagner, University of East Anglia Mr Nigel Smeeton, University of Hertfordshire Dr David Wellsted, University of Hertfordshire Mrs Amander Wellings, University of Hertfordshire
	National Institute for Health and Care Research (NIHR) Award ID: NIHR135734
Protocol version number and date	V.3 August 2024

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1. Title and additional identifiers

1.1 Full title of the study

Evaluation of LLBD Health Checks with Online booking and text reminders for Wellbeing (ELBOW) 1.2 Short title of the study

Derbyshire Health Checks Evaluation (ELBOW)

1.3 Registry

To insert*

1.4 Funding

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1.5 Research team investigators

Name	Institution	Email	Role
Professor Katherine Brown	University of Hertfordshire	k.brown25@herts.ac.uk	Chief Investigator
Professor Julia Jones	University of Hertfordshire	j.jones26@herts.ac.uk	Co-Chief Investigator
Miss Charis Bontoft	University of Hertfordshire	c.bontoft@herts.ac.uk	Senior Research Assistant
Dr Gavin Breslin	Ulster University	g.breslin1@ulster.ac.uk	Co-Investigator
Miss Imogen Freethy	University of Hertfordshire	I.freethy@herts.ac.uk	Senior Research Assistant
Dr Neil Howlett	University of Hertfordshire	n.howlett@herts.ac.uk	Co-Investigator
Dr Laura Kudrna	University of Hertfordshire	l.kudrna@bham.ac.uk	Co-Investigator
Laura Lamming	University of Hertfordshire	l.lamming@herts.ac.uk	Research Fellow
Mr Nigel Lloyd	University of Hertfordshire	n.lloyd2@herts.ac.uk	Senior Research Fellow and **project lead**
Lisa Miners	University of East Anglia	l.miners@uea.ac.uk	Senior Research Associate
Dr Katie Newby	University of Hertfordshire	k.newby@herts.ac.uk	Co-Investigator

Mr Nigel Smeeton	University of Hertfordshire	n.smeeton@herts.ac.uk	Social Statistician
Dr Adam P Wagner	University of East Anglia	Adam.Wagner@uea.ac.uk	Co-Investigator
Mrs Amander Wellings	PIRg	amanderwellings@yahoo.co.uk	PPI Co Investigator
Dr David Wellsted	University of Hertfordshire	d.m.wellsted@herts.ac.uk	Co-Investigator
Ms Katherine Barrett	PHIRST Connect Public Involvement in Research group (PIRg)	Available on request	Public contributor
Mr John Jackson	PHIRST Connect Public Involvement in Research group (PIRg)	Available on request	Public contributor

1.6 Scientific Abstract

Cardiovascular disease (CVD) is a general term for conditions affecting the heart or blood vessels. It contributes to a quarter of UK deaths (Office for Health Improvement & Disparities, 2022) and is the largest cause of premature mortality in deprived areas of England (NHS England, 2019). The economic costs of CVD are significant, with CVD-related health and social care costs in England estimated to exceed £7.4 billion annually (British Heart Foundation, 2023). To assess risk and work to lower the chances of individuals developing CVD, the NHS provides an NHS Health Check (NHSHC) for people who are aged 40-74 years and do not have any pre-existing health conditions. The health check (HC) is free at the point of access. Those who are eligible are invited by their GP or local council every five years or are able to self-refer by contacting their local health check provider (NHS, 2020). Live Life Better Derbyshire (LLBD) is Derbyshire County Council's (DCC) healthy lifestyles service. It aims to help people make long-lasting changes to improve their health and wellbeing. In June 2022, DCC began a pilot project that involved modifying the delivery of the NHSHC in 10 GP practice areas. The pilot involves a longer and more holistic health check delivery by LLBD staff rather than GP practice staff (LLBD-led delivery). LLBD deliver health checks in all 10 pilot practice areas, conducting health checks within GP practices and community venues. In some pilot practices, delivery by GP practice staff (GP-led delivery) continues alongside LLBD-led delivery. Later changes included introduction of text message prompts about a forthcoming NHSHC invitation and reminders to attend and an online booking option alongside telephone booking. The aim of the proposed evaluation is to investigate the impact of modifications to NHS health check invitation and session delivery on health check attendance, outcomes, and resources. Also, to explore staff and client experiences of the modifications made to health check practice. The study will adopt a mixed methods design, incorporating analysis of existing quantitative data, alongside qualitative data collection and analysis. Workstream 1 will involve investigation of whether

the availability of NHS HCs by the Live Life Better Derbyshire (LLBD) team, implementation of text message prompts and reminders to make a booking and the introduction of a HC online booking option led to changes in: a) uptake of NHS HCs based on those invited for a HC and b) HC-related outcomes based on those who received a HC. Existing service data will be used. The unit of analysis will be the individual. Data for GP vs. LLBD delivery will be divided into three intervals: Period 1 (no texts and no online booking); Period 2 (texts but no online booking); Period 3 (texts and online booking). Uptake of NHS HC invitations and HC-related outcomes will be analysed as binary variables, using proportions. Workstream 2 will involve qualitative focus group data collection with LLBD staff who co-ordinate and deliver health checks across pilot sites. Workstream 3 will involve qualitative interview data collection with staff at GP pilot sites. Workstream 4 will involve qualitative interview data collection with peole who have received a LLBD health check. All qualitative data will be analysed using the APEASE criteria which considers an intervention's Acceptability, Practicability, Effectiveness, Affordability, Side-effects/unintended effects, and Equity from the perspectives of these three stakeholder groups. Work package 5 will estimate the resources used (staff time and consumables) and associated cost per patient for attendance to either a modified (LLBD) or standard (GP-led) NHSHC health check. Findings across workstreams will be synthesised to produce a robust evaluation of the impact of the amendments to NHS Health Check practice. Although evaluation research of NHS Health Checks has been extensive, there is limited knowledge on the impact of delivery by providers outside of a GP-led model and this research will provide a valuable contribution to our understanding of the impact of this alternative approach.

2. Background information

2.1 Contextual information

Derbyshire is a ceremonial county in the East Midlands region of England, sharing borders with Greater Manchester, Yorkshire, Nottinghamshire, Leicestershire, Staffordshire and Cheshire. In 2021, Derbyshire had a population of almost 800,000, and was home to 354,000 households (Office for National Statistics [ONS], 2021). In the last ten years, the population has been rising, albeit at a slower pace than of England overall (3.2% vs 6.6%) and has been becoming more diverse (Derbyshire County Council [DCC], 2022). The county has experienced a 42% increase in non-UK born residents and a 54% increase in residents from minority ethnic backgrounds. However, in terms of ethnic background, the population profile in Derbyshire is somewhat homogenous compared to the national average, with 2021 census data indicating that 94% of the Derbyshire population identifies as White British compared with the national average of 73% (ONS, 2021). The median age of Derbyshire’s population is 2.8 years older than England’s average (DCC, 2022).

Derbyshire is geographically diverse and includes urban and built-up areas as well as sparsely populated rural areas and the Peak District National Park. Much of the North and West of Derbyshire is rural, and 27% of the total population live in such rural areas (DCC, 2023a). Several towns have their roots in traditional industries such as quarrying and coal

mining. Notably, the Index of Multiple Deprivation (IMD) shows 22 of the 491 lower layer super output areas (LSOAs) in Derbyshire fall within the 10% most deprived areas in England – most of these are in former coalfields areas. A further 64% fall within the 20% most deprived areas in England (Ministry of Housing, 2019). Manufacturing remains Derbyshire's largest employment sector, representing one sixth of the county's workforce – double the national average. Since 2019 employment levels have fallen by 3.6%, compared with a fall of 1.9% nationally (ONS, 2019).

Life expectancy in Derbyshire has been decreasing since 2017 and is lower than the national average; latest figures show that male life expectancy is 79.2 years and female life expectancy was 82.8 years, compared to a national average of 79.4 and 83.1 respectively (Office for National Statistics, 2021). The highest life expectancies in Derbyshire are associated with rural areas, whilst the lowest life expectancies tend to be in areas of higher deprivation such as the coalfield areas. A 2017 report on health inequalities in the East Midlands (Public Health England [PHE], 2017) highlighted that, compared to England as a whole, Derbyshire had a higher number of adults aged 16 and over classified as inactive, a higher number of hospital admissions for alcohol related conditions, a higher proportion of adults aged 16 and over classified as overweight or obese, and a higher proportion of the population reporting a health problem or disability that limits their day-to-day activities. Derbyshire County Council report that smoking, physical activity, poor diet, excessive alcohol consumption, and sexual ill health are the five biggest contributors to disease and disability in the county. These factors contribute to a range of conditions including obesity (66% of adults in Derbyshire are considered to be overweight or obese (DCC, 2023c)), tooth decay, poor mental health, diabetes, respiratory and cardiovascular diseases, and certain cancers. To address the public health issues experienced by the Derbyshire population, Derbyshire County Council has identified working to support people to live healthy lives as the first of the five priorities set out in its 2018 to 2023 health and wellbeing strategy (DCC, 2023b).

2.2 The public health problem and NHS Health Checks

Cardiovascular disease (CVD) is a general term for conditions affecting the heart or blood vessels. It contributes to a quarter of UK deaths (Office for Health Improvement & Disparities, 2022) and is the largest cause of premature mortality in deprived areas of England (NHS England, 2019). The economic costs of CVD are significant, with CVD-related health and social care costs in England estimated to exceed £7.4 billion annually (British Heart Foundation, 2023).

The majority of CVD cases are preventable (NHS, 2019) and CVD-related conditions such as heart disease, stroke, kidney disease, and vascular dementia share the same four major behavioural risk factors: poor diet, tobacco use, alcohol consumption, and physical inactivity (Capewell et al., 2015). The risk of developing these conditions also increases with age in both men and women (National Health Service [NHS], 2020). Though the warning signs of these conditions often do not have symptoms, a holistic review of a person's lifestyle can identify their chances of developing one or more of them.

To assess risk and work to lower the chances of individuals developing CVD, the NHS provides an NHS Health Check (NHSHC) for people who are aged 40-74 years and do not have any pre-existing health conditions. The health check[1] (HC) is free at the point of access. Those who are eligible are invited by their GP or local council every five years, or are able to self-refer by contacting their local health check provider (NHS, 2020).

The NHSHC is conducted by a healthcare professional; this is usually a nurse but can also be a doctor, pharmacist, or healthcare assistant. The health check usually lasts between 20 and 30 minutes, and includes measurements such as:

- Height, weight, and waist size
- Blood pressure
- Cholesterol
- Possibly a blood sugar level test or blood test

NHSHC attendees are also asked to report:

- Whether they have any close relatives with medical conditions
- Whether they smoke or drink alcohol and to what extent
- How much physical activity they do
- Their age, gender, and ethnicity

Results of the health check are usually provided during the appointment, calculated by observing the measurements and lifestyle factors. Attendees are given a cardiovascular risk score (known as a QRISK score) which details their risk of developing a circulation or heart problem (e.g., stroke, diabetes, kidney disease, or heart disease) within the next ten years, categorised as either low, moderate, or high risk. They also receive a breakdown of their body mass index (BMI), cholesterol levels, blood pressure, diabetes risk, alcohol use, and a physical activity assessment (NHS, 2020).

At the end of the health check, there is an opportunity to obtain advice and discuss the appropriate clinical and behavioural approaches to reduce risk scores. These approaches could include referral to a General Practitioner (GP) to consider pharmacological interventions (typically statins or anti-hypertensives), or a referral to 'lifestyle' services (such as a weight management programme, or smoking cessation or addiction service) (NHS, 2020).

The programme is estimated to cost £450 million a year to deliver, however, the effectiveness of the NHSHC programme has been questioned (Capewell et al., 2015). The new Office for Health Improvement and Disparities (OHID) has itself identified several ways to improve the NHSHC for attendees. These include a greater use of technology and the personalisation of the NHSHC for the individual (OHID, 2021). Recognising scope for improvement of the NHSHC programme, local authorities have begun to adapt the health

[1] Throughout this document the abbreviations NHSHC and HC will be used interchangeably to refer to the NHS health check.

check intervention to better tackle the development of diseases and long-term conditions in their authority areas.

2.3 The intervention to be evaluated

Live Life Better Derbyshire (LLBD) is Derbyshire County Council's (DCC) healthy lifestyles service. It aims to help people make long-lasting changes to improve their health and wellbeing. The service is funded by DCC and is available for anyone who lives in Derbyshire. Services and referrals include support with stopping smoking, weight management, and physical activity.

In June 2022, DCC began a pilot project that involved modifying the delivery of the NHSHC in 10 GP practice areas. The pilot involves health check delivery by LLBD staff rather than GP practice staff (LLBD-led delivery). LLBD deliver health checks in all 10 pilot practice areas, conducting health checks within GP practices and community venues. [2] In some pilot practices, delivery by GP practice staff (GP-led delivery) continues alongside LLBD-led delivery.

In the pilot practice areas, eligible residents who are registered with the pilot GP practice either have the option of choosing to attend a GP-led or LLBD-led health check, or will be given an LLBD-led health check as standard (depending on the practice). There are several differences between an LLBD and GP-led health check, such as:

- An LLBD-led health check last for approximately 45-60 minutes, compared to the GP-led health check which lasts for about 20-30 minutes.
- The additional time in an LLBD-led health check is intended to allow for further lifestyle conversations, referrals, and signposting.
- The staff delivering an LLBD-led health check are holistic lifestyle experts who have specific referral expertise and can signpost to a wide variety of wellbeing services. A standard GP-led health check may be delivered by a nurse, doctor, pharmacist, or healthcare assistant and may be part of numerous responsibilities.
- The LLBD-led health check offers an HBA1C test, a blood test to investigate average blood glucose levels and therefore the presence or development of diabetes. A GP-led health check will only conduct an HBA1C if someone has clinical risk symptoms (e.g., they are overweight), whereas an LLBD-led health check offers the test to everyone.

[2] The pilot project has operated in a total of 14 GP practice areas since its inception. However, in four of these areas, implementation has been extremely limited in scope and duration. In these four areas, three or fewer LLBD-led health checks have been conducted, and our evaluation therefore focuses on the 10 'core' practices engaged in the pilot.

- An LLBD health check involves all GP-led checks and measures, and additionally includes a 'health and wellbeing MOT'. The MOT assesses smoking, physical activity, weight concerns, emotional wellbeing, alcohol consumption and associated social problems, financial issues and debt management, and employability concerns. Depending on the client's responses, they may be referred to receive additional support from LLBD, NHS services, or other third-sector providers. The MOT is considered to be a more holistic wellbeing approach, focussing on broader domains than a standard NHSHC.

DCC NHSHC data (including data for LLBD-led HCs) is collated and managed by an independent organisation called TCR Nottingham. In addition, LLBD record information about referrals resulting from the MOT on a separate data monitoring system called Theseus.

Due to the differences in the length and depth of an LLBD-led health check, they are expected to be more costly to delivery. However, health conditions that are picked up early, or lifestyle changes that halt the development of health conditions can save money that would otherwise be spent in costly treatment or rehabilitation (Maciosek et al., 2010). This evaluation will explore whether the LLBD-led health checks lead to any changes in health check outcomes (e.g., number of referrals, or new prescriptions). Additionally, staff and patient experiences of the LLBD-led health check will be explored, as well as any changes to a patient's health-related knowledge and prospective behaviour change. As a result, this evaluation will generate valuable learning opportunities to help the health check services work more effectively for staff and clients.

In addition to LLBD-led delivery, two additional modifications have been made to NHSHCs in the 10 pilot areas, which will also be the focus of this evaluation. Firstly, beginning in mid-2023, postal reminders sent to those eligible for an NHSHC to remind them to book an NHSHC appointment were supplemented by text message prompts and reminders. An initial text message is sent prior to an NHSHC invitation letter and a subsequent text is sent to remind the client to book an appointment. Secondly, beginning in autumn 2023, those eligible for health checks have had the option of booking their NHSHC appointment online rather than by telephone. Both modifications will be evaluated, and our evaluation will therefore focus on three NHSHC modifications:

1. Modifications to the delivery of the NHSHC – LLBD-led rather than GP-led delivery.
2. Modification to the NHSHC invite process – implementation of text message prompts and reminders.
3. Modification to the NHSHC invite process – implementation of an online booking option.

2.4 Review of relevant existing evidence

The NHS Health Check (NHSHC) was first introduced in 2009 by NHS England as a world-leading risk assessment and risk management programme, signalling further focus on CVD prevention (Kearney, 2017). In 2013 the programme was relaunched when commissioning

responsibility was transferred from NHS Primary Care Trusts to Local Authorities (LAs). At this point, statutory requirements were set and overseen by Public Health England (PHE), including a focus on standardising the measurements collected and increasing the volume of health checks being delivered. In 2021, PHE was split into the UK Health Security Agency and Office for Health Improvement and Disparities (OHID) and OHID took responsibility for the programme. OHID produced a major review of NHSHCs and found that the programme has met many of its aims. For example, it had been taken up by a representative socio-economic and ethnic mix of the population, it had revealed a high level of modifiable risk factors, and specialised service referrals were high even amongst disadvantaged groups (OHID, 2021).

However, new research evidence has emerged in the last decade that has transformed understanding of the development and predictors of cardiovascular disease. OHID's review recognised these developments, as well as huge leaps forward in digital technologies, and provided six recommendations to make the NHSHC more proactive, predictive and personalised:

1. Recast the NHSHC as an ongoing relationship rather than delivering isolated health checks.
2. Launch a digital offer of the NHSHC, keeping it face-to-face for those who want it.
3. Make the NHSHC available to people between the ages of 30 to 39 years.
4. Improve participation by all eligible people, but especially the people most likely to benefit – for example, men, those who live in more deprived areas, those from black and minority ethnic groups.
5. Address more conditions and take the first step towards a more holistic view of an individual's health.
6. Create a learning system by launching a rigorous ongoing evaluation of the new NHSHC offer.

The new vision for the NHSHC is to engage more directly with people and encourage individual behaviour change – the outline of each recommendation includes several steps designed to achieve it. The goals include engaging people to maintain good health and empowering and supporting them to take and continue to take sustained action to reduce their risks (OHID, 2021).

Encouraging eligible people to attend a health check has proved challenging and inequity has been identified in the likelihood of different groups attending. The OHID review found that the NHSHC programme reached two in five eligible people (OHID, 2011). This finding had been replicated across the literature, with Martin et al. (2018) finding via systematic review that less than half (45.6%) of eligible people have received a health check, and notably, Dalton et al. (2011) finding that just 44.8% of high-risk patients attended a health check. Of those who receive an invitation, Martin et al.(2018) found that less than half (48%) go on to attend. Click or tap here to enter text.Uptake has been found to be higher in older people and females, and lower in those living in deprived areas (Cook et al., 2016; Dalton et al., 2011; Martin et al., 2018). However, Andrew et al (2011) found that although uptake was lower in younger males, young males from south Asian or mixed ethnic backgrounds were more likely than young white males to attend. Additionally, patients registered with smaller practices (<3000 patients) were more likely to take up their invitation.

A systematic review of the qualitative evidence to understand some of the barriers toward attending health checks (Harte et al., 2018) identified nine studies, and six main reasons for non-attendance were suggested. Firstly, a low level of awareness of the NHSHC was found across the studies – some participants had no knowledge of the offer or any recollection of an invitation. A lack of awareness or misunderstanding of the purpose was also cited as a barrier to attendance. Many invitees were unaware of the preventative aim of the health check, and therefore felt attendance whilst in good health was unnecessary and burdensome to the health service. Time and access constraints were also frequently cited; an actual or perceived difficulty in making an appointment was the most common barrier, particularly for those who worked typical office hours or had caring responsibilities. Lastly, there were concerns regarding privacy and confidentiality when NHSHC were planned to be carried out by pharmacists, with males demonstrating less willingness to attend a pharmacy-led appointment than females. This research highlights several actionable findings relevant to policymakers and healthcare professionals such as targeted communication; distinguishing between NHSHCs and routine/urgent care; and reducing concern that attending is burdensome.

Communications surrounding health checks have been studied extensively. The impact of amending invitation letters or using text-message prompts and reminders on attendance at health checks is well-established (Alpsten, 2015; Bunten et al., 2020; Sallis et al., 2019). In fact, the impact of different methods has been demonstrated to differ between ethnic, gender, and age groups (Cook, 2016; Bunten 2020). Alpsten (2015) found that a combination of a deadline commitment (e.g., your NHSHC is due in August) accompanied by both a primer and reminder text message was the most successful electronic invitation combination – delivering a 12% increase in uptake. Though, in contrast to face-to-face invitations, the level of uptake was still low (71.9% vs 29.5% for letters) (Cook, 2016).

It is difficult to determine the consistency of the HC procedure across the UK. However, the impact on outcomes has been documented. For example, Usher-Smith et al.'s (2017) rapid synthesis of published NHSHC evidence highlighted small increases in disease detection and greater statin prescription for attendees,a new case of raised blood pressure found every three to four health checks, and a person with cardiovascular disease risk (>20%) identified every six to ten checks. However, the effect of the NHSHC on attendee behaviour is largely unknown. Qualitative evidence suggests attendance is a wake-up call and catalyst to making substantial lifestyle changes, but Usher-Smith et al. (2017) found no quantitative studies reporting the effect of NHSHCs on smoking, diet or physical activity, and research examining post NHSHC behaviour change is limited (Duddy et al., 2021). Usher-Smith et al.'s (2017) review was updated in 2022 by Tanner and colleagues, identifying 29 new studies and largely consistent findings on attendance, profile of attendees, impacts of invitation method, and detection of risk and outcomes (Tanner et al., 2022).

To explore the impact of invitation type further, the current study will investigate the impact of text message prompts and reminders and an online booking option on the uptake of the NHS Health Checks. Further to this, outcomes data will be contrasted between standard GP-based NHSHC (GP-led) and Live Life Better Derbyshire-provided (LLBD-led) health checks. Little is known about the impact of delivery by alternative providers (e.g.,

third sector organisations), although Andrew et al.(2011) do highlight that smaller practices have favourable uptake over larger practices. Thus, this contrast will provide a novel aspect to the current study, exploring the impact on outcomes of a holistic health check compared with the standard one. Staff and client experiences will also be collected, to extend the literature on barriers and enablers and examine any planned lifestyle and behavioural changes for attendees, and the difference that a broad, holistic health and wellbeing assessment may make to recipient. Lastly, due to the potential difference in cost depending on deliverer, the current study will explore the costs and resources required by the modified NHSHC, and how they compare with standard GP-led health checks, in this locality.

3. Study Information

3.1 Aim

To investigate the impact of modifications to NHS health check invitation and session delivery on health check attendance, outcomes, and resources. Secondly, to explore staff and client experiences of the modifications made to health check practice.

3.2 Research questions

1. Does the implementation of a) text message prompts and reminders and b) a HC online booking option lead to any changes in uptake of the NHS Health Checks (HCs)?;

2. Does delivery of modified HCs by the Live Life Better Derbyshire (LLBD) team, which includes Health and Wellbeing MOTs, lead to any changes in HC outcomes?

3. What are staff experiences of the modified HC?

4. What are clients' experiences of the modified HC and how do clients feel it has impacted their current and future health and wellbeing?

5. What are the costs and resources required for the modified HC delivery and how do they compare to costs and resources for standard GP based HC delivery?

4. Study design and methods

4.1 Study design overview

The study will adopt a mixed methods design, incorporating analysis of existing quantitative data, alongside qualitative data collection and analysis (sections 4.3 to 4.7 outline our evaluation methods in more detail). We will take a convergent, parallel mixed methods

approach (Creswell & Plano-Clark, 2011), applying both methods concurrently, and bringing them together at the interpretation stage. A mixed method approach will allow for complementarity in the analysis process (using results from one method to enhance, elaborate or clarify findings from the other) (Tariq & Woodman, 2013).

We will use the APEASE criteria (Michie, Atkins, & West, 2014) as a framework through which to evaluate the Derbyshire health checks modifications. APEASE has six criteria, summarised in Table 1, which can be used to guide evaluations of interventions. As APEASE guidance indicates (West et al., 2020) these criteria can be used for a range of evaluation purposes, from developing plans for services to formal evaluation of existing interventions. We will use APEASE for the latter purpose here, as the criteria encompass the key components and concepts unpinning our research aims, and all our data collection and analysis will inform one or more of them. For instance, 'acceptability' will incorporate data on stakeholders' views and experiences of the modified health check; data on the practicalities of implementation will relate to 'practicability'; 'effectiveness' encompasses our evaluation of outcomes; 'affordability' will include exploration of costs and resources; 'side effects' will draw on findings about unexpected outcomes; and our analysis of the impact of modifications on patterns of engagement will illuminate our understanding of 'equity'. APEASE has previously been used to evaluate interventions and inform future interventions design (see for example, Brierley et al., 2022).

Table 1: Summary of APEASE criteria (adapted from Michie, Atkins, & West, 2014 and West et al., 2020**)**

Criterion	Description
Acceptability	How far is the intervention considered appropriate by key stakeholders (including target groups, those involved in coordinating and delivering the intervention, community members and funders)?
Practicability	Can the intervention be implemented as designed within the intended context, material and human resources? What are the practical considerations to its implementation?
Effectiveness	How effective is the intervention in achieving the desired objectives and what is the extent of its effectiveness?
Affordability	How affordable is the intervention when delivered at the scale intended? Can the intervention be delivered for an acceptable budget? Does it provide a good return on investment?
Side-effects	Does the intervention lead to any unintended adverse or beneficial outcomes?
Equity	How far does intervention increase or decrease differences between advantaged and disadvantaged sectors of society?

The project has been divided into six distinct workstreams (WSs). Each workstream seeks to answer specific research questions (RQs) or address RQs in a different way to provide for a well-rounded and robust evaluation that will allow for evaluation of the modifications under study through the lens of the APEASE criteria.

Study inclusion criteria are broadly that participants must be adults aged 18 or above, have the capacity to consent to participate, and have provided informed consent to participate.

Table 2 below, provides a summary of each workstream and the study research question/s that it informs. Further detail on each of these workstreams is provided in sections 4.3 to 4.7 below.

Table 2: Study workstreams (WSs) mapped to research questions (RQs)

WS	Summary	RQ1	RQ2	RQ3	RQ4	RQ5
1	Quantitative analysis of client HC records held by TCR Nottingham	P	P			
2	Focus groups with Live Life Better Derbyshire staff involved in coordinating and delivering the modified HC session			P		P
3	Individual or joint interviews with staff from pilot GP practices whose roles involve the coordination or delivery of HCs			P		P
4	Individual interviews with a selection of clients who have received a LLBD HC.		P		P	
5	Health economic resource and cost evaluation					P
6	Data analysis, synthesis, and dissemination	P	P	P	P	P

4.2 Co-production and PPI

4.2.1 Co-production

Co-production is a central tenet of the PHIRST initiative and our evaluation plans. This evaluation will be co-produced by PHIRST Connect with Derbyshire County Council and other local partners and stakeholders, who will work together to plan, design, deliver, and disseminate the evaluation. We will regularly communicate and consult with these partners and stakeholders, and in addition present proposals and updates to our Independent PHIRST Advisory Board (composed of relevant stakeholders in the field of public health and evaluations, which includes academics, third sector, governmental and public expertise) and our Derbyshire-specific Advisory Group (similarly composed of key stakeholders but with membership more closely reflecting the evaluation topic and locality). The feedback they provide will continually shape key decisions within the research process including design, ethics, and dissemination.

4.2.2 Patient, public and stakeholder involvement

The University of Hertfordshire is committed to involving the public in all stages of its research and has an existing Public Involvement in Research group (PIRg) consisting of members of the public, service users and carers. Patient and public involvement (PPI) is a fundamental part of our PHIRST approach to research and evaluation and will be integral at all stages. All PPI activities will be co-ordinated by the PPI co-investigator (Amander Wellings), the academic PPI co-chief investigator Professor Julia Jones and members of our PHIRST.

For this evaluation, we aim to embed public and local stakeholder involvement in the following ways:

1. PHIRST Public Involvement in Research Group (PIRg): this group is hosted by the University of Hertfordshire and will collaborate with the research team across all aspects of the study.

2. Derbyshire public consultation group/s: once early findings are available, we will aim to convene one or more local consultation groups made up of those eligible for NHSHCs to consult regarding interpretation and dissemination of findings.

3. Advisory Group membership: we will aim to recruit to the Independent Advisory Group, two public contributors with experience of NHSHCs.

The PHIRST PIRg will provide public, service user and carer perspectives to all the public health evaluation projects conducted by the team. The ten members of the PIRg meet monthly to discuss key aspects of PHIRST Connect evaluation work (for example, research questions, methodology, literature review, research tools, data analysis, and dissemination), and in between meetings, will work closely with the PHIRST to co-produce the evaluation. In addition, two PIRg members will be part of the core research team throughout the study.

Once evaluation findings are available, we will aim to convene one or more local consultation groups, comprising NHS health check eligible public contributors. We will work will local partners, stakeholders, and community groups and organisations, to assemble a group of contributors who are able to provide a local, service user perspective on interpretation of findings, key messages, and potential dissemination routes and formats. They will assist in co-producing outputs that are accessible to lay people and members of the public.

In addition, we will aim to recruit to our Independent Advisory Group (please see section 5.2), two public contributors with experience of attending an NHS health check.

4.3 Workstream 1: Quantitative analysis of NHS Health Check (HC) records in Derbyshire

Aim

To investigate whether the availability of NHS HCs by the Live Life Better Derbyshire (LLBD) team, implementation of text message prompts and reminders to make a booking and the introduction of a HC online booking option led to changes in:

a) uptake of NHS HCs based on those invited for a HC

b) HC-related outcomes based on those who received a HC

Setting

General practices in urban, semi-rural and rural communities in Derbyshire, excluding the Derby City Council area, involved in the delivery of LLBD HCs.

Overview and design

In the pilot study of LLBD delivery, practices could choose either a combination of GP and LLBD delivery (here referred to as Option A) or have the LLBD team, administered by the LLBD Hub, deliver all NHS HCs (Option B). Of the ten participating practices, eight chose Option A and two chose Option B. Some practices subsequently switched option or left the pilot. Other practices have joined since the start of the pilot.

Individuals at Option A practices were provided with booking details for both their General Practice and the LLBD Hub so they could choose the type of delivery themselves. Individuals at Option B practices were asked to call the LLBD Hub and so could only access LLBD delivery.

From mid-2023, postal invites to arrange a HC sent out by TCR Nottingham, the organisation that manages the Derbyshire County Council HC data, were supplemented by text message prompts and reminders. Later that year, online booking of HCs was made available.

Relationships under investigation are the proportion of those invited for a HC who attended a health check by the methods of communication in use and the proportion of HC visits that led to specific HC-related outcomes by type of HC delivery.

Note that the statistical methods and the variables chosen for the analysis are dependent on the sample size and the data that TCR Nottingham can provide at the level of the individual.

Recruitment and sampling

The study timeframe is from the start of June 2022 to the end of July 2024. The two years have been divided into Period 1, when both GP and LLBD delivery were operating but no

additional methods of communication, Period 2 with both GP and LLBD HCs available along with text messaging, and Period 3 with GP and LLBD HCs, text messaging, and optional online HC booking. Period 1 is between June 2022 and May 2023, Period 2 between June 2023 and November 2023, and Period 3 between December 2023 and July 2024. To assess uptake of and attendance at HCs, individuals will be followed up for the four months following the date of first invitation, so only individuals invited before the end of March 2024 will be analysed. Records selected will include those for May 2022, as individuals attending for a HC at the start of Period 1 should have been sent an invitation during that month.

Data for individuals from practices involved with the pilot at any point will be obtained from TCR Nottingham. Individual patient records contain demographic information, observations recorded during the HC, records of subsequent referrals, and the dates of letters and texts sent to the patient regarding the booking of a HC. In addition, records show whether the individual received GP or LLBD delivery of their HC.

Analysis

The unit of analysis will be the individual. Data for GP vs. LLBD delivery will be divided into three intervals: Period 1 (no texts and no online booking); Period 2 (texts but no online booking); Period 3 (texts and online booking). Uptake of NHS HC invitations and HC-related outcomes will be analysed as binary variables, using proportions. First, univariate analyses will be performed. For invitation uptake, proportions will be compared between the three intervals with data for GP delivery and LLBD delivery individuals combined, using the chi-squared test. For HC-related outcomes, GP and LLBD delivery will be compared for the intervals combined on differences in proportions with 95% confidence intervals.

To allow for period effects, GP and LLBD delivery will be compared stratified by period, using loglinear modelling. To adjust for covariates (e.g., age, gender, contact by practice via text), outcomes will be analysed using multivariable logistic regression (Hosmer et al., 2013).

Sensitivity analyses will be performed regarding the impact of the practices that joined the pilot after the start of the study or exited. The analyses will be repeated excluding practices with only partial participation. Stata Version 15.1 (Stata Corp, 2017) will be used for the analyses.

Sample size

The sample size will be determined by the number of records available for the practices involved in the study. As an indication, 4900 health checks are delivered per year. Therefore, there will be approximately 4900 records for Period 1, 2450 records for Period 2, and 1640 records for Period 3.

4.4 Workstream 2: Qualitative data collection with Live Life Better Derbyshire staff involved in coordinating and delivering the modified HC sessions

Summary
Focus groups with Live Life Better Derbyshire staff involved in coordinating and delivering the modified HC session to explore their experiences of delivering HCs.

Design
Qualitative focus groups (x2).

Focus group topic guide
Ahead of its use, we will gain feedback on the focus group topic guide from the PHIRST Connect PIRg members embedded as part of the research team.

Briefly, topics explored during focus groups will include: aims and objectives of the LLBD modified HC delivery and how different aspects of delivery contribute to these; participants' and other stakeholders' views on the modified HCs initiative (e.g., acceptability); the process of setting up and delivering LLBD HCs within GP practices; content of the modified HC and structure of the HC session; outcomes of the modified HC for clients; barriers to HC engagement and outcomes and any differences between client groups; factors that promote/enable HC engagement and outcomes; lessons learnt from the modified HC delivery; challenges to effective delivery of the modified HCs.

Recruitment and sampling
We will invite all LLBD staff involved in coordinating and delivering the modified HC session (currently 6 people) to participate in a focus group.

An email drafted by the research team, with accompanying evaluation information, will be circulated to all prospective participants to invite them to participate in one of two planned focus groups. The email will contain a link to a secure online system, REDCap (Harris et al., 2009), which participants will be asked to visit to read a participant information sheet (PIS), provide e-consent via an online form, provide basic details about themselves (for example, job role, gender, and basic demographic details), and select a convenient time and date to participate in a focus group.

Inclusion criteria:

- Be aged 18 years or above.
- Have the capacity to consent to participate.
- Have provided informed consent to participate.
- At the point of registration to participate, be an LLBD staff member involved in coordinating or delivering the modified HC sessions.

Setting

All data will be collected remotely using video conferencing software (Zoom).

Procedure
Focus groups will take place online, facilitated and moderated by two members of the research team. To participate in an online focus group, participants will need to have individual access to the video-conferencing software Zoom. Participants may choose to participate using audio only, or video plus audio.

A safeguarding protocol will be in place and will be enacted as/when required. Focus groups and interviews are expected to last no longer than one hour and consent for recording will be gained from participants prior to recording commencing. Audio recordings will be fully transcribed prior to analysis.

Analysis
Focus group transcripts will be uploaded into NVivo (or similar software) for coding and analysis. Transcripts will be analysed using Framework Analysis (Gale et al., 2013) as this offers a structured, systematic approach to qualitative data analysis by multiple researchers. More detail on our approach to management and analysis of qualitative data can be found in section 4.8.1.

4.5 Workstream 3: Qualitative data collection with staff from pilot GP practices whose roles involve the coordination or delivery of HCs

Summary
Individual or joint, semi-structured, in-depth interviews with staff members from pilot GP practices whose roles involve the coordination or delivery of HCs, to explore the impact that LLBD HC delivery has had on their roles and workload.

Design
Individual or joint (two interviewees) semi-structured interviews (maximum x10).

Interview topic guide
Ahead of its use, we will gain feedback on the interview topic guide from the PHIRST Connect PIRg members embedded as part of the research team.

Briefly, depending on the role of the staff member, topics explored during interviews will include: extent of LLBD HC provision within the practice; the process of setting up and delivering a standard HC; content of a standard HC and structure of the HC session; extent of joint working/liaison with LLBD; impact of LLBD HC delivery on participant's role and workload (including benefits and downsides); benefits and drawbacks of LLBD delivery of HCs; how LLBD HC provision affects the burden of delivering HCs; suggestions for improvement of the LLBD delivery.

Recruitment and sampling

We will recruit participants for this workstream from the 10 GP practices involved the

NHSHC pilot. DCC has good links with the 10 GP practices and will initially introduce the practices to the evaluation and help to broker contact between the practices and the research team. Once initial contact has been made with a GP practice, research team members will ensure that the practice is fully informed of the nature and purpose of the evaluation and their agreement to the potential involvement of their staff member/s will be gained.

Practice staff ordinarily tasked with conducting NHSHCs (likely to include practice nurses and healthcare assistants) and staff involved in coordinating GP-led HCs (such as practice managers and administrative staff) will be invited to attend an individual or joint interview with a member of the research team. We will provide practices with information about the evaluation to circulate to these staff members via email or hard copy. The information will include a link to a secure online system (REDCap), which participants will be asked to visit to read a participant information sheet (PIS), provide e-consent via an online form, indicate their preferred interview type (individual or joint), and provide basic details about themselves (for example, job role, gender, length of time in role, and other basic demographic details). Alternatively, staff may be consented via a telephone conversation with a research team member. Once consent has been gained, participants will be contacted by email or telephone to arrange a convenient interview time and date. To ensure a range of GP practices are represented, we will aim to conduct interviews with staff members from at least four different practices.

Inclusion criteria:

- Be aged 18 years or above.
- Have the capacity to consent to participate.
- Have provided informed consent to participate.
- At the point of registration to participate, be a healthcare professional working within one of the pilot GP practices whose role involves the coordination or delivery of HCs.

Setting

We anticipate that most data will be collected remotely (i.e., using telephone or the video conferencing software Zoom). Data may be collected via face-to-face interviews where this is preferable to the participant.

Procedure

Individual or joint, semi-structured, in-depth interviews will take place online, by telephone, or face-to-face depending on participant preference. Joint interviews would involve staff members from the same GP practice. A single research team interviewer will conduct each interview.

A safeguarding protocol will be in place and will be enacted as/when required. Interviews are expected to last no longer than one hour and consent for recording will be gained from the participant prior to recording commencing. Audio recordings will be fully transcribed prior to analysis.

Analysis

Interview transcripts will be uploaded into NVivo (or similar software) for coding and analysis. Transcripts will be analysed using Framework Analysis (Gale et al., 2013). More detail on our approach to management and analysis of qualitative data can be found in section 4.8.1.

4.6 Workstream 4: Qualitative data collection with a selection of clients who have received a LLBD-led HC

Summary
Individual, semi-structured, in-depth interviews with a selection of clients who have received an LLBD-led HC to explore experiences of the HC, motivators, barriers and enablers to engagement, and the difference the HC has made to the client.

Design
Individual semi-structured, in-depth interviews (maximum x16).

Interview topic guide
Ahead of its use, we will gain feedback on the interview topic guide from the PHIRST Connect PIRg members embedded as part of the research team.

Briefly, topics explored during interviews will include: clients' HC expectations and experiences of the HC; previous HC engagement; barriers to and motivations for HC attendance; knowledge of well-being related issues gained because of the HC; the difference the HC has made to the client and their families; anticipated future wellbeing-related changes and the motivations for these.

Recruitment and sampling
We will aim to recruit and interview a sample of between 10 and 12 (maximum 12) participants who have recently (within the last six weeks) received an LLBD-led HC. The assistance of LLBD staff delivering HCs within GP practices will be important in enabling us to access potential participants. LLBD staff have indicated that they will be able to assist us in recruitment.

Following an LLBD-led HC, staff members would be asked to hold a brief discussion with clients about the evaluation. We anticipate that the discussion would take no longer than two minutes, and the research team will provide guidance for LLBD staff on what information to share. A flyer or information sheet outlining the aims and purpose of the evaluation, produced by the research team, will also be provided to potential participants. These will include a scannable barcode that links to a University of Hertfordshire REDCap site containing the evaluation Participant Information Sheet (PIS), and through which participants are able to provide basic information about themselves (e.g., age, gender, ethnic background, and contact details) and e-consent.

Following this initial post-HC discussion between LLBD staff member and client, LLBD staff members will be able to assist with participant recruitment in any of the following ways:

1) The research team will produce a simple, short REDCap form, through which potential participants can provide their name and contact details (email or telephone number). LLBD staff will be able to present this link, via a tablet or computer, to clients interested in participating in an evaluation interview. Clients can be invited to enter their details on the REDCap system. Members of the research team would then use the details provided to contact the client, provide full details of the evaluation, and gain e-consent or telephone consent.

2) Similar to method 1) above. However, LLBD staff would present to potential participants, via a tablet or computer, the link to a REDCap site containing the full PIS and participant information and e-consent forms. Clients would be invited to read the PIS, provide basic information about themselves, and e-consent. In addition, where participants are unable to navigate the REDCap site themselves (e.g., because of literacy issues), and where LLBD staff have sufficient time available, staff will be able to assist the client with completion of the e-consenting process.

3) Where a client is interested in participating in the evaluation but unable to immediately provide contact details or e-consent via REDCap (e.g., because of time constraints or where the client would like time to consider further whether or not to register to participate), LLBD staff would provide the client with an information sheet with a scannable QR code linking to the full REDCap site (with full PIS and e-consent forms). This would allow the client to provide details and e-consent at a later stage.

We will generate a pool of potential participants using the methods described above. Thereafter, within the constraint of sample size, maximum variation sampling will be used to obtain a sample which provides variation in terms of gender, age, and, if possible, ethnic background (as stated earlier, Derbyshire is an ethnically homogeneous county with 94% of residents identifying as White British). Selected participants will be contacted by a member of the research team to arrange a convenient interview time and date as soon as possible after they e-consent or register interest to participate, and interviews will be conducted as soon as possible after this. This will help to minimise the time between HC and research interview and maximise the likelihood of participants having an accurate recall of their HC when interviewed. We will aim to interview participants within six weeks of them having taken part in an LLBD-led HC. Potential participants will be assured that their participation or non-participation in the study will not be shared with LLBD or their GP practice.

To encourage participation, a ‘thank you’ shopping voucher will be offered to all of those who participate in an interview.

Inclusion criteria:

- Aged 18 years or above.
- Have the capacity to consent to participate.
- Have provided informed consent to participate.
- Have received an LLBD-led HC within the past six weeks.

Setting
We anticipate that most data will be collected remotely (i.e., using telephone or the video conferencing software Zoom). Data may be collected via face-to-face interviews where this is preferable to the participant.

Procedure
Individual, semi-structured, in-depth interviews will take place online, by telephone, or face-to-face depending on participant preference. A single research team interviewer will conduct each interview.

A safeguarding protocol will be in place and will be enacted as/when required. Interviews are expected to last no longer than one hour and consent for recording will be gained from the participant prior to recording commencing. Audio recordings will be fully transcribed prior to analysis.

Analysis
Interview transcripts will be uploaded into NVivo (or similar software) for coding and analysis. Transcripts will be analysed using Framework Analysis (Gale et al., 2013). More detail on our approach to management and analysis of qualitative data can be found in section 4.8.1.

4.7 Workstream 5: Health economic resource and cost evaluation

Aim

- To estimate the resources used (staff time and consumables) and associated cost per patient for attendance to either a modified (LLBD) or standard (GP-led) NHSHC health check.

Method
The primary cost perspective of the analysis will be that of the local authority funder: Live Life Better Derbyshire. Where (health economic) resources (e.g., staff time) need to be costed, we will draw on costs from the appropriate programme and standard sources (e.g., Unit Costs of Health and Social Care 2022 Manual) as needed, using the latest cost year for which data are available at time of analysis. We will produce tables comparing resources (e.g. staff time and consumables) and associated costs required to deliver the different HCs. We will consider whether there are any metrics/outcomes that may be informative when considering programme effectiveness (e.g., onward referral) and the feasibility of their routine collection. Where such data are available, we will consider an exploratory economic evaluation (cost-consequences analysis) comparing the costs and outcomes between the different HC alternatives. Further, if data allow and is deemed relevant in this setting, we will also consider the health economic impact on service users (e.g. out-of-pocket expenses, such as travel costs).

Data collection
We expect to source information from programme managers and staff involved in delivery of HCs. Relevant stakeholders will be invited to discussions, or asked to support the

completion of a short template form, on the resources and associated budgets associated with HC delivery.

4.8 Workstream 6: Data analysis, synthesis, and dissemination

4.8.1 Data analysis and synthesis

All qualitative data will be analysed using Framework Analysis (Ritchie and Spencer, 2004) as this offers a structured, systematic approach to managing qualitative data analysis (Gale et al., 2013) and the possibility for PIRg and service user involvement in the analytic process. Both inductive or deductive coding and analysis, or a mix of both, may be used with Framework Analysis depending on the nature of a study's research questions (Gale et al., 2013). For this study, we will conduct both to enable us to understand findings in terms of the APEASE criteria while also allowing for exploration of staff and users' experiences, and scope for unanticipated themes relevant to the research questions to be identified.

We anticipate using a coding approach where our initial coding in NVivo utilises a number of pre-selected codes related to the APEASE criteria while also allowing for inductive coding of data. After Framework Analysis 'charting' has been conducted, themes would be identified under each APEASE criterion, with space allowed for identification of themes that lie outside the scope of APEASE but are relevant to our research questions.

Approaches to integrating qualitative and quantitative research procedures and data can be implemented at 'design', 'methods', and 'interpretation and reporting' stages of research (Fetters, Curry, & Creswell, 2013). For this study, qualitative and quantitative data will be collected concurrently and integrated at the 'interpretation and reporting' stage. Qualitative research data collected during Workstreams 2, 3, and 4, and quantitative data from Workstreams 1 and 5, will be separately analysed as standalone workstreams before being brought together (Brannen, 2005). In terms of qualitative and quantitative data integration, a mixed contiguous/weaving approach will be taken (Fetters & Freshwater, 2015), allowing the research team to integrate findings from the quantitative outcomes and health economic analyses with qualitative analysis of staff and clients' interview and focus group data. During the interpretation and reporting stage, the APEASE criteria will act as a framework through which we will interpret and report findings.

4.9 Dissemination and outputs

Recommendations will be generated by the research team, through consultation with the Advisory Board, Independent Advisory Group, Derbyshire County Council, and the PIRg. Recommendations will be further developed and refined with key Derbyshire stakeholders, including local community members and members of public contributor groups, at one or more stakeholder workshops. Workshops will be facilitated by the PHIRST team and make use of group work and interactive, participatory methods to engage workshop participants in a collaborative decision-making process. This will help to ensure that the recommendations generated by the evaluation are appropriate and feasible, are co-

produced, and fit with the needs and plans of the local authority and other key stakeholders.

In terms of dissemination, PHIRST Connect impact, implementation and dissemination work will be driven through the development of an 'Impact Map', 'Dissemination Strategy' and 'Implementation Plan'.

The Impact Map will outline the different levels of implementation that will be conducted with different audiences and map the short, medium and longer-term impacts. The Impact Map will be developed in partnership with:

- Derbyshire County Council
- Relevant local stakeholders such as GPs, health professionals, and community and voluntary sector organisations
- PIRg members
- Local public contributors and community members
- Project Advisory Board and Group

It will consider the value of findings to the wider public health system and its stakeholders and how outputs can be effectively communicated and mobilised to other regions and sectors. The Impact Map will capture how the outcomes will be used by the local authority to inform planning and delivery in the short, medium and long-term, and once developed, will define the criteria for strategic impact work and how this will be delivered.

Following development of the Impact Map, we will work to develop a 'Dissemination Strategy' and 'Implementation Plan'. In addition, a dynamic database of stakeholders will be created and we will convene a 'design group' to test ideas for effective implementation and dissemination. Dissemination will occur through several key routes, including:

- Main outputs for the local authority (tbc)
- PHIRST website, jointly managed by all the PHIRST teams
- Creative outputs such as video and interactive content
- Social media channels
- Traditional academic routes of conference presentations and peer-reviewed, open access journal articles
- Dissemination through professional networks
- Other key stakeholder groups (tbc)

All outputs will be informed by consultation with the PIRg, local stakeholder and public contributor groups, and the project Advisory Group. In addition, to organize the collaboration within all PHIRST teams across England, a national-level PHIRST Communications Working group has been set up with representatives from each PHIRST as well as PPI members (supported by the PPI co-applicant and PPI expertise from University of Hertfordshire). This team will meet regularly and develop proposals for NIHR approval.

4.10 Plain English Summary

Overview of the project being evaluated

National Health Service Health Checks (NHSHCs) are available to anyone aged between 40-74 who does not already have a health condition. The health check (HC) is conducted by a healthcare worker, and includes measurements of

- Height, weight, waist size,
- Blood pressure,
- Cholesterol,
- Sometimes a blood sugar level test.

People who attend a HC are also asked to tell the healthcare worker:

- If their family members have any health problems,
- Whether they smoke or drink,
- How active they are,
- Their demographics (age, gender, ethnicity).

The aim of taking these measurements is to identify people who may be at a higher risk of heart problems. The results of the HC allow healthcare workers to give the attendee advice about how to lower their risk or start them on a medication to slow down any development of a health problem.

The NHSHC programme is run by Local Authorities (LAs). Some LAs have made changes to the way they deliver the HC to improve the service they offer. Derbyshire County Council is one of the LAs that has made changes to their health check service. In ten pilot GP surgeries, an organisation called Live Life Better Derbyshire (LLBD) delivers the health checks using a team of wellbeing and lifestyle experts. The LLBD-run HCs differ in several ways:

- They take longer, allowing for more detailed lifestyle conversations
- Blood sugar levels are tested as standard to look for risk of diabetes
- There are extra discussions about smoking, activity levels, weight concerns, emotional wellbeing, and issues with money or work, and referrals to extra support for those who need it
- The experts have specific knowledge of much of the support available in the area

The ten practices have also been sending letters in the post, and text messages to remind eligible people to book their HC. As well as this, people are able to book their HC online by following a link or QR code in their text message or letter.

Why is this study needed and what are we aiming to do?

A lot of research has already been done to investigate how many people take up their invitation for a health check, what stops people taking up the invite, and whether the HC causes a change in people's lifestyles and health. However, there is little research on whether the person who delivers the health check makes an impact on these things.

Overall aims

1. To understand the difference that the changes to how the HC is delivered makes to attendance at HCs, outcomes of HCs, and the costs and resources needed to deliver HCs.
2. To explore staff and clients' experiences of the changes made to the health checks invitations, booking system, and the sessions themselves.

Research questions

1. Does using a) text message prompts and reminders and b) a HC online booking option lead to any changes in uptake of the NHS Health Checks (HCs)?

2. Does delivery of HCs by LLBD lead to any changes in HC outcomes?

3. What are staff experiences of the LLBD HC?

4. What do clients think of the LLBD HC and what difference has it made to them?

5. What are the costs and resources required for the LLBD HC to be delivered and how do they compare to costs and resources for a HC run by surgery healthcare workers?

Research design

There are six pieces of work involved in this evaluation (called Workstreams):

Workstream 1 – Analysis of the figures collected about who attends HCs and what difference they make. This will help to understand whether using text messages to remind people to book a HC or letting people book their HC online led to any changes in: a) whether people did or didn't attend HCs; b) HC outcomes, such as medicine prescribed.

Workstream 2 – Focus group discussions with Live Life Better Derbyshire staff involved in managing and delivering the LLBD HC to explore their experiences of delivering HCs.

Workstream 3 – Interviews with staff members from GP surgeries to explore the difference that LLBD HC delivery made to their roles and work.

Workstream 4 – Interviews with a selection of clients who have received a LLBD HC to understand their experiences of the HC and any difference the HC has made to them.

Workstream 5 – Looking at the costs and resource involved in running a LLBD HC compared with one delivered by surgery healthcare workers.

Workstream 6 - This is the workstream where we bring together all the information we have collected to analyse it and decide what our main findings are.

Public/service user involvement

Two Public Involvement in Research group (PIRg) members will be part of the core research team throughout the study. Also, once early findings are available, we will aim to set up one or more Derbyshire consultation groups made up of those eligible for NHS health checks to consult with regarding interpretation and sharing of findings.

Evaluation timescales

Start of evaluation work: November 2023
Draft final report/reporting completed: March 2025
Key dissemination activities completed: April 2025

The Value of the findings
The study will provide valuable information to help Derbyshire County Council and other local councils improve their health check delivery. For example, it will help them understand more about the difference that text message reminders and online booking options can make to whether people book and keep a health check appointment. It will also help them understand how changing who delivers a health check and how it is delivered, can affect the outcomes of the health check.

5. Research governance and project management

5.1 PHIRST Connect governance and project management

Appendix 1 presents an organogram of the PHIRST Connect showing the team structure and roles.

Project Leads
The project is being led by the PHIRST Senior Research Fellow, Nigel Lloyd, with direction and supervision from the two PHIRST Chief Investigators, Professor Katherine Brown and Professor Julia Jones.

Management Group
The PHIRST Connect Management Group meets on a bi-weekly basis to provide oversight and guidance to PHIRST Connect. The Management Group comprises the Chief Investigators and the nine PHIRST Co-Investigators listed in section 1.5.

PHIRST Connect Patient Involvement in Research group (PIRg)
The University of Hertfordshire is committed to involving the public in all stages of its research and has an existing Public Involvement in Research group (PIRg) comprised of members of the public, service users and carers. In collaboration with our PPI Co-Investigator Amander Wellings, we have set up a dedicated PHIRST Connect PIRg, which is chaired by Amander and supported by Professor Julia Jones and members of the research team.

The PIRg work closely with the PHIRST Connect team and provide public, service user and carer perspective to all the public health evaluation projects conducted by the team. The ten members of the PIRg meet as a whole on a monthly basis to discuss various aspects of

PHIRST Connect evaluation work (for example, research questions, methodology, reviews of literature, research tools, and dissemination).

5.2 PHIRST Connect advisory and consultative groups

PHIRST Connect Independent Advisory Board
An Independent Advisory Board (PHIRST Connect Independent Advisory Board) has been convened to provide independent, external and policy-orientated advice to PHIRST Connect. The Board provides specific advice and support in relation to the strategic direction of PHIRST Connect and its allocated projects. It comments on the ongoing work plan and progress in line with study protocols, acts as a sounding board for new ideas and developments, and advises on opportunities for wider dissemination and for translating research into policy and practice. It is an advisory only body and does not make decisions in its own right or report to any other group or committee.

The Board will meet up to three times per year and is comprised of experts in the fields of public health and evaluation from academic, third sector, governmental and public sector backgrounds. The Board members are:

Table 2. List of Independent Advisory Board Members

Name	Job title	Organisation
Mrs Helen King Varah (**Chair**)	Former Deputy Director of Public Health / currently Independent Public Health Consultant	Solihull Public Health Department
Dr Nicola Armstrong	Programme Manager, HSC & R&D Division	Northern Ireland Public Health Agency
Professor Katherine Brown	Professor of Behaviour Change in Health	University of Hertfordshire (non-independent)
Mr Geoff Brown	CEO	Healthwatch Hertfordshire
Mr John Jackson	PPI Expert by Experience on PHIRST Connect Public Involvement In Research Group (PIRg)	Independent member
Professor Steve Cummins	Co-Director of the Population Health Innovation Lab	The London School of Hygiene and Tropical Medicine
Jane Ford	Public Health Intelligence Advisor	Public Health Scotland
Ms Charlotte Grey	Public Health Evaluation lead	Public Health Wales
Dr Sarah Hotham	Senior Research Fellow & NIHR RDS SE Research Adviser	University of Kent
Professor Margaret Maxwell	Director of MHANP Research Unit	University of Stirling

Professor Toby Prevost	Director, Nightingale-Saunders Clinical Trials & Epidemiology Unit at King's CTU	Kings College London
Mrs Genevieve Riley	Senior Researcher	Public Health Wales
Professor Sarah Stewart-Brown	Professor of Public Health	University of Warwick
Mrs Amander Wellings	PPI Expert by Experience; Chair of PHIRST Connect PIRg	University of Hertfordshire (non-independent)
Professor Julia Jones	Professor of Public Involvement and Health; Co-Chief Investigator, PHIRST CONNECT	University of Hertfordshire (non-independent)

PHIRST Connect Derbyshire Modified Health Checks Evaluation Independent Advisory Group

A project-specific Advisory Group will be convened to offer specific advice and support in relation to the Derbyshire Modified Health Checks evaluation. The Advisory Group will meet up to six times per year for the duration of the evaluation. It will be comprised of the following members:

Table 3. List of Derbyshire MHC Independent Advisory Group Members

Name	Job title	Organisation
Tim Adwick	PPI Public contributor	
Anand Birju	PPI Public contributor	
Nina Chauhan-Lall	Public Health Development Officer – Health Improvement	Walsall Council
Nikki Coghill	Lecturer	University of Bath
Danny Kemp	Health and Wellbeing Programme Manager	Office for Health Improvement and Disparities (OHID)
Darren Kinahan-Goodwin	Healthcare Public Health Practitioner	Derbyshire County Council
Adam Norris	Public Health Commissioner	Derbyshire County Council
Fatai Ogunlayi	Consultant in Public Health	Warwick Medical School
Beverly Parker	CEO	Rural Action Derbyshire
Fiona Simmons-Jones	Consultant in Public Health	NHS England and University of Cambridge
Amander Wellings	PPI co-applicant	University of Hertfordshire
Jackie Willis	CEO	Derbyshire Voluntary Action

6. Ethical considerations and approvals

This project approaches ethics as an ongoing reflexive exercise relevant to all aspects of data collection, analysis and publication. While the sections below provide a description of the ethical issues identified, it is possible that unexpected ethical issues will arise during the course of the research. The research team will monitor and document ethical concerns that arise and these will be captured in the study's 'issue log'. When necessary, these will be discussed with partner organisations (in accordance with provisions regarding confidentiality). PPI input will be sought in any discussion about ethical matters at all stages of research, both routinely, as and when different forms and data collection instruments are developed, as well as when particular issues arise.

In line with NIHR's commitment to the sharing of research data, we will aim, where feasible, to make fully anonymised qualitative data resulting from recordings of interviews with clients available via a general data repository. Prior to uploading to the repository, the client data would be fully anonymised by redaction, with direct and indirect identifiers redacted.

Informed Consent and withdrawal

All participants will be aged 18 years or older. All potential participants will be provided with a detailed Participant Information Sheet, which will convey comprehensive information about the project to allow them to provide written consent. They will be requested to record this consent in an electronic or hard copy consent form. Where e-consent is provided this will be via a secure portal (REDCap). Participants will be informed about their right to withdraw from the study at any time.

Participant information will be written in a style of language that is accessible to participants. To ensure this, we will seek input/review from PHIRST Connect PIRg members. A dedicated telephone number and email address will be set up for participants to contact the research team with queries.

Data protection

All data will be stored and processed in line with GDPR and our Data Protection Impact Assessment (DPIA). Data will be stored on our project-specific R drive (on UH server) and only accessible to those within the research team who require this. The R drive will be used to store details of those participating in focus groups/interviews, audio recordings, transcripts of focus groups/interviews, and other qualitative data collected for the evaluation. Also see section 7 below (data protection and management).

Confidentiality

With the exception of where participants identify themselves or others as being in danger or at imminent risk, or where potential criminal activity is indicated, all personal information will be considered confidential. Data will be stored and processed in line with GDPR, and a Data Protection Impact Assessment (DPIA) will be developed.
This project will seek to maintain full participant confidentiality. Participants' contributions to the research will not be shared with service providers or stakeholder organisations and will be anonymised in publications.

Risks, safeguarding and referrals
It is not expected that the nature of the project will give rise to safeguarding concerns beyond those of any other project. A PHIRST safeguarding protocol has been developed which will be used to guide decision-making/actions as and when necessary. A copy of the safeguarding protocol is available on request from the Chief Investigators. The team is also familiar with the University of Hertfordshire, School of Life and Medical Sciences safeguarding policy, which will be adhered to.

Potential benefits for study participants
The evaluation will provide valuable learning about how the HC invitation and booking processes might be optimised and how greater take-up of HCs in Derbyshire can be facilitated, with potential benefits for the health and wellbeing of Derbyshire residents. The study will also contribute valuable knowledge about barriers to uptake of HCs and how changing the delivery of the HC session can affect HC outcomes.

Approvals
Ethics approval will be sought through the University of Hertfordshire Health, Science, Engineering & Technology Ethics Committee with Delegated Authority.

7. Data protection and management

The PHIRST is an NIHR funded initiative, and the University of Hertfordshire is leading a consortium involving Queens University Belfast, the University of Birmingham and the University of East Anglia. Staff at the University of Hertfordshire will take full responsibility for organising data collection and the safe management and storage of data.
A study Data Protection Impact Assessment (DPIA) assessment will be conducted and reviewed by the University of Hertfordshire Data Compliance Officer, and a full DPIA developed for review and approval where required.

A Data Management Plan (DMP) will be produced specifying the types of data that will be generated by the study, how these data will be preserved, and how they will be shared. The DMP will reflect the University of Hertfordshire's commitment to open access science.

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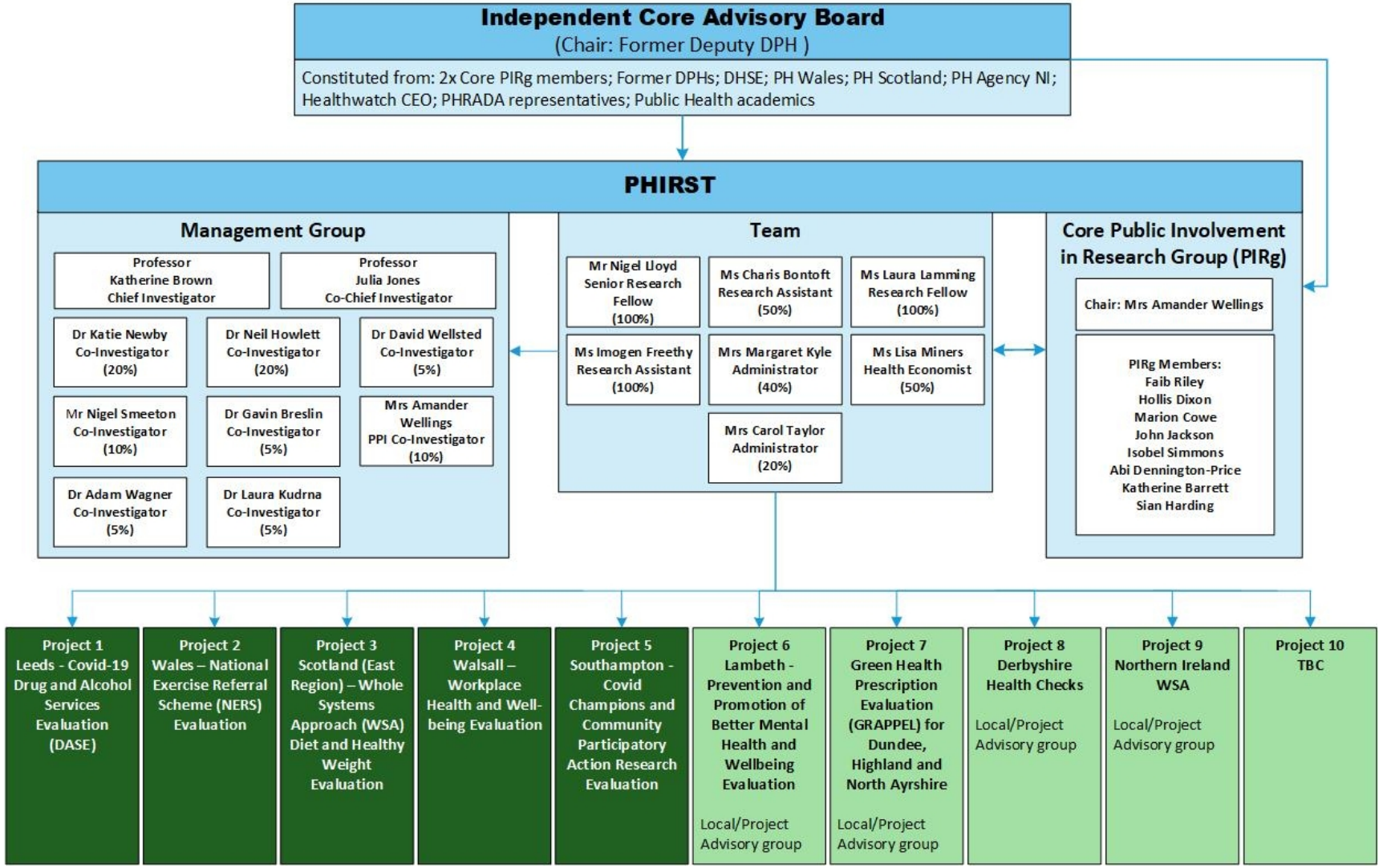
Appendix 1: PHIRST Connect team organogram



Appendix 2: Project timescales / GANTT chart

Activity	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25
Protocol writing																				
Data Protection and Impact Assessment (DPIA)																				
Ethics application submission and approval																				
WS1 – Preparation/planning for quantitative data component																				
WS1 - Data analysis																				
WS2 – Recruitment																				
WS2 – Data collection																				
WS2 – Data analysis																				
WS3 - Recruitment																				
WS3 - Data collection																				
WS3 - Data analysis																				
WS4 - Recruitment																				
WS4 - Data collection																				
WS4 - Data analysis																				
WS5 - Health economics component																				
WS6-Data analysis																				
WS6-Data synthesis and interpretation																				
Draft final report/reporting																				
Dissemination																				