

Using Behavioural Insights to Increase Access to Healthcare in North East London Boroughs

Final Report
June 2022



UNPITCHD

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Executive Summary

Behaviour to change

The consortium sought to increase uptake of the NHS Health Check (HC) for our target profile, men aged 40-59 in deprivation deciles 1-4. The consortium selected the NHS HC as it fulfilled a number of our criteria for an intervention: this addressed a priority area where we believed we could have a positive impact, there was a pathway to data to measure results, and it would be a good use of resources as the NHS HC was restarting post-pandemic.

Behavioural Insights gathering

UNPITCHD, working with the councils, conducted interviews and focus groups across the consortium between November 12th and 29th 2021, speaking to 48 residents and two GPs in order to gather information on barriers to healthcare and the NHS Health Check.

We also disseminated a survey to North East London (NEL) residents for the same purpose.

Following these insights-gathering activities, we completed a mapping exercise to analyse healthcare barrier types and behavioural drivers, to compile a long list of target 'behaviours to change' to take into the design phase.

Behavioural Insights

Through our insights gathering activities (focus groups, interviews, and a survey), we found several key insights about healthcare attitudes, beliefs, and behaviours as well as the NHS HC.

With regards to healthcare and accessing the NHS, we found that people were hesitant to access health services in the first place due to perceived high demand, and many

respondents anticipated difficulty when booking an appointment with their GP, especially in person. There was a stress on using the GP as a last resort and for treating symptoms of illness rather than going to the GP for preventative healthcare. The pharmacy was often seen as a more efficient and effective service for treatment.

We also gathered insights on where people accessed information about their health, with the majority going online first, using Google or the NHS website. They also said they would go to friends and family, the pharmacy, or their GP.

With regards to the NHS HC, the survey provided a quantitative data sample which illustrated that awareness of the NHS HC was low, with 50 per cent of respondents stating that this was their first time hearing of the HC, and 95 per cent of NHS HC eligible respondents did not know how to access a HC outside of receiving an invite. The largest barriers overall were a lack of invites to appointments from a GP, difficulty getting an appointment outside of work hours, and difficulty phoning a GP and simply obtaining an appointment.

We categorised the behaviours, beliefs and attitudes we observed by behavioural principle (attention, belief formation, choice, and determination) as well as barrier type (administrative, cognitive, information/communication, economic, psycho-social). Most behaviours were categorized as attention/administrative barriers such as booking issues, attention/information barriers such as unawareness of the NHS HC, and psycho-social barriers for each behavioural principle such as believing the NHS was inefficient.

The barriers we identified from all of our insights activities can be grouped into three areas: awareness and access barriers, and barriers due to beliefs and perceptions of the NHS, and healthcare and preventative medicine generally. The main specific barriers we observed were:

- Awareness and access: Total unawareness of the NHS HC, lack of relationship with a GP, time clashes with work or childcare

- NHS beliefs and perceptions: real and anticipated administrative barriers such as issues booking appointments, believing that the NHS is inefficient or overloaded
- Beliefs and attitudes about healthcare and prevention: turning to the internet for medical advice, putting their families' needs before their own or not thinking they needed an NHS HC.

The Intervention and behavioural techniques

The intervention consisted of a new SMS invite to the NHS Health Check which included a link to a voice note, operationalizing the 'people like you' principle. The language in the new SMS and in the voice note also touched upon several behavioural barriers we observed, including:

- 'GP relationships matter'/Personalisation: addressing the patient by name
- Attention/simplicity: the use of language such as "you're at the top of the queue", "we've reserved a spot" created a sense of excitement and conveyed simplicity in booking an NHS HC
- Awareness of the NHS HC: detailing the purpose of the NHS HC
- Social proof/herding: language to make the patient feel like getting an NHS HC is the norm in the area
- Optimism bias/'superhero' mentality: language in the voice note to address health overconfidence
- 'Family first': encouraging language to signal to the patient the importance of preventative healthcare.

Our findings suggest that the core behavioural principle activated by the intervention (especially being influenced by people 'like you') has effectively been successful.

High level results

Intervention practices reported a higher increase in booking inquiries and booking rates than control practices.

Observed attendance for our target group was 20 per cent higher in intervention surgeries, suggesting that the trial was overall successful. Indeed, we observe that both booking interest (reported) and attendance (observed) have been diminished for the non-target groups in the intervention, women and older men in particular. This data suggests that alignment between the tailoring of the intervention for the receiver is essential.

3 key learning points

1. Data

- Ensure data collection methods early, due to the sensitive nature of working with healthcare data as well as navigating the institutions and structures of public health.
- We recommend that future NHS HC trials run for a quarter, as this would allow for the full impact of such an intervention to be measured, as well as alleviate the burden of data collection as councils receive NHS HC data quarterly.

2. Allies

- Mapping out institutions and groups, and their purposes and partners for those unfamiliar with healthcare is an important exercise.
- We found that working with community engagement officers/groups in the insights gathering phase was very helpful for recruitment, especially for reaching our target profile. Ensuring that information governance officers in boroughs were updated at least monthly was also helpful with regards to data sharing agreements.

3. Project Management and Governance

- For managing a project at consortium (NEL) level, it was essential to have a centralised person responsible for managing and actively encouraging cross-borough collaboration, especially at the monthly workshops.
- Council project managers should also bring in key team members (for example, community engagement officers, other public health team members,

and those experienced in behavioural science if available) early to split the workload.

Key recommendations

- The further testing of key messages for different demographic groups to inform the adoption of behaviourally informed text message and supporting voice note as invites to the health checks, tailored to key demographic attributes such as gender and age. A gender-specific approach to the communications related to NHS Health Checks seems essential.
- The availability to translate the invite into more languages than English as a key feature of the updated communications.
- Finally, to remedy the frustration of patients who were invited but unable to book a Health Check, we also recommend invites consistent with the GP surgeries' availability.
- The launch and roll-out of an 'above the line' awareness campaign for the NHS HC (lack of awareness of the HC were indicated as the primary barrier to attendance during the research phase).

Phase I: Align – Background research into healthcare attitudes and barriers, aligning on a healthcare challenge

Objectives

The objective of this phase was to align on a common healthcare access challenges as a consortium. This section will discuss:

A. Activities and Key Materials

- i. Literature review and background research.
 - 1. Patient pathways
 - 2. Motivations and barriers to the NHS HC
 - 3. Attendance by demographics
 - 4. Previous behavioural insights trials with the NHS HC
- ii. The long list of potential challenges and success criteria.

B. Results

- i. Selection of the healthcare challenge.

A. Activities and Key Materials

i. Literature Review

1. Patient Pathways

In phase II, we examined patient pathways and mapped a journey through an NHS Health Check from invite to completion of the Health Check to explore potential touchpoints to increase access. We looked at where NHS HCs take place, who could attend, and how they may attend.

We found that nationally, NHS Health Checks are conducted at GP surgeries, pharmacies, and occasionally at local libraries, leisure centres, or mobile units. In north east London, they are conducted only at GP surgeries, narrowing the possible scope of

the intervention. Eligible patients (people between the ages of 40 to 74, without preexisting conditions such as diabetes) are invited for a free check every five years, using a variety of invite methods, including letters, SMS, phone calls, and opportunistic invites, or a combination of these methods.

Walking through an online pathway imitating how an uninvited but eligible patient would book a Health Check, we found that this often resulted in loops and 'dead end' webpages with little information and no way to book a Health Check. We concluded that booking a Health Check without an invite was unlikely to be successful through an online route, and as we found through our insights in phase II, many patients are unwilling to phone their GPs. Therefore, the people most likely to attend an NHS HC would have been invited directly by GP surgery.

2. Motivations and Barriers: The NHS Health Check

Existing research on the NHS Health Check noted that patients' primary motivations for attending the Health Check were to ensure that they were in good health and had no serious ailments or conditions. A family history of heart disease or knowing someone with an illness identified by the Health Check was also a strong motivating factor.

We also identified some potential barriers to uptake in our research.

Some reasons identified for not attending a Health Check were:

- A lack of awareness of, knowledge about, or misunderstanding the purposes of the Health Check.
- Competing priorities or not having the time to go.
- An aversion to preventative medicine services.
- Lack of convenient appointment times.
- Concerns about the quality of checks (in pharmacies in particular).¹

¹ L Tanner et al., "NHS Health Check Programme Rapid Review Update" (University of Sutherland and Newcastle University Population Health Sciences Institute, April 23, 2020).

Qualitative data from a Redbridge Health Check Programme Health Equity audit also suggested that awareness among local residents was very low, however those who were informed of the Health Check responded positively.²

3. Attendance by demographics

A variety of studies explored factors influencing NHS Health Check uptake. We were particularly interested in studies which examined uptake trends by demographics, such as age, gender, ethnicity, and deprivation index decile. This information would allow us to ascertain a target profile for our intervention in accordance with the aims of the trial – to increase access to healthcare in underprivileged groups.

Bunten et al. conducted a systematic review of factors influencing NHS HC uptake, including patient characteristics.³ All studies included in the review found that older patients were more likely to attend than younger patients, consistently regardless if studies tested the effects of age in increments of years or decades. They also found in the majority of studies that uptake was highest for female patients, with two studies finding that female patients were 50 per cent more likely to attend their NHS HC than male patients. In terms of deprivation decile, where a significant effect of deprivation was found, the majority of studies reported that more deprived groups were less likely to attend their Health Check. Ethnicity presented a mixed response, with some studies finding little or no difference in uptake between ethnic groups.⁴

In a study commissioned by Public Health England by Tanner et al., which reviewed six studies, with similar results across age and gender.⁵ With regards to ethnicity, the review also reported that studies show a mixture of attendance rates for white and BAME groups, with note to one study by Chang et al. in 2016 which suggests that at a

² Mumtaz Meeran et al., “NHS Health Check Programme: Health Equity Audit,” n.d.

³ Amanda Bunten et al., “A Systematic Review of Factors Influencing NHS Health Check Uptake: Invitation Methods, Patient Characteristics, and the Impact of Interventions,” BMC Public Health 20 (January 21, 2020), <https://doi.org/10.1186/s12889-019-7889-4>.

⁴ Ibid.

⁵ L Tanner et al., “NHS Health Check Programme Rapid Review Update” (University of Sutherland and Newcastle University Population Health Sciences Institute, April 23, 2020).

national level, white people are more likely to attend their Health Check. In addition, the review suggested that people in higher levels of deprivation were less likely to attend their Health Check at a national level.⁶

In addition to these studies, we also used quantitative data driven dashboards to help us identify our target profile. Tools such as this [NHS Health Check digital tool](#) helped us to identify the characteristics of Health Check non-attendees in our councils in particular, as well as '[Fingertips](#)' public health data to observe more generalised trends.

Using these findings, we were able to pinpoint our target group for the intervention design: men aged 40 to 59, living in more deprived areas, of all ethnicities, as these were the characteristics of patients who were less likely to attend their Health Checks.

4. Previous behavioural insights trials focused on the NHS Health Check

We researched previous behavioural insights trials with the NHS Health Check to see what lessons could be learned and improved upon in our trial.

Southwark Trial

In 2015, Southwark Council, Public Health England, and the Department of Health examined low cost ways to increase NHS Health Check attendance and conducted a randomised controlled trial with 28 GP surgeries to test a new letter and text invite. They tested new, shorter letters with simpler language and accompanied letters with priming text messages. They found that a deadline commitment letter and a priming and reminder text were most effective in boosting uptake of NHS Health Checks.⁷

Gain and Loss Framed Messaging in the National Patient Information Leaflet

A double-blind three-armed randomised control trial was conducted in 39 GP practices in Lewisham and 17 GP practices in north east Lincolnshire using new leaflets. All

⁶ *Ibid.*

⁷ Public Health England, Department of Health, and Southwark Council, "Low Cost Ways to Increase NHS Health Check Attendance: Results from a Randomised Controlled Trial," August 2015.

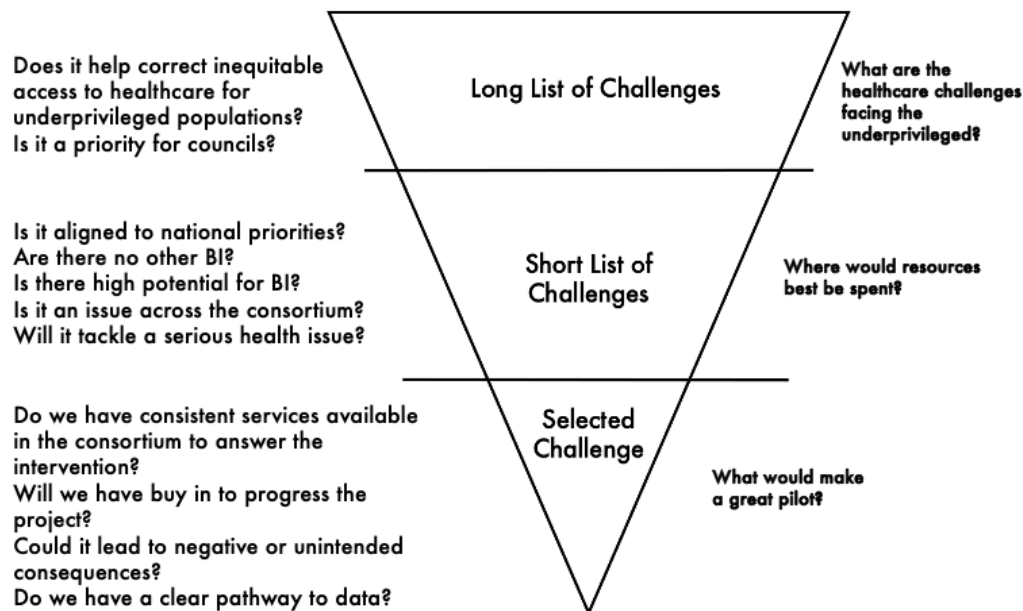
leaflets were shorter, being two pages rather than four, and one had loss-framed messaging (such as ‘don’t miss out’) whilst the other was gain-framed (‘make the most of your health check’). The trial found that there was no evidence for a meaningful effect of either loss or gain-framed messaging in leaflets. As a result of this trial, we did not seek to implement loss or gain framed messaging specifically in our intervention, but did take forward a few of the recommendations, for example, indicating when appointments were available, personalising text messages, and combining effective interventions which are likely to be complimentary.⁸

ii. Our success criteria and long list of potential challenges to selected challenge

During our first workshop as a consortium, we completed a funnel exercise to help score and select our challenge. At the top of the funnel was our ‘long list’ of interventions, with challenges that included smoking cessation, dental care, childhood immunisations, and weight management. The shortlist was comprised of NHS Health Checks, primary care access, mental health, and cancer screenings, before selecting to move forward with NHS Health Checks as our challenge. See below for a visual guide to the funnel exercise.

⁸ Natalie Gold et al., “Applying Behavioural Science to Increase Uptake of the NHS Health Check: A Randomised Controlled Trial of Gain- and Loss-Framed Messaging in the National Patient Information Leaflet,” *BMC Public Health* 19, no. 1 (November 14, 2019), <https://doi.org/10.1186/s12889-019-7754-5>.

Figure 1. Funnel exercise to align on our selected challenge.



B. Results

i. Selecting our healthcare challenge: why the NHS Health Check?

The NHS HC is a national programme launched in 2009 for the prevention of non-communicable diseases such as stroke, kidney disease, heart disease, type 2 diabetes, and dementia. It is part of a wider healthcare strategy aimed at empowering patients and preventing illness.⁹

In order to be eligible for the Health Check, patients must be between ages 40-74 and without an existing condition such as cardiovascular disease (CVD) or diabetes and not had an NHS Health Check within the last five years. The Health Check records age, gender, ethnicity, smoking status, family history of CVD, body mass index (BMI), physical activity level, cholesterol level, alcohol use, and calculates a 10 year risk of CVD using QRISK, a prediction algorithm for cardiovascular disease.¹⁰

⁹ NHS, "NHS Health Check," nhs.uk (Department of Health, November 26, 2019), <https://www.nhs.uk/conditions/nhs-health-check/>.

¹⁰ *Ibid.*

A key part of the programme is encouraging behaviour changes by encouraging and supporting patients with detected risks on clinical and community pathways such as smoking cessation or weight management services.¹¹ Ensuring that a high percentage of eligible patients attend their NHS Health Check is crucial in order to optimise the cost effectiveness of the programme and ensure that diseases are caught early, saving lives and the NHS money in the long term.

The programme is delivered by various providers across the country, predominantly primary care practice staff – in NEL, we found that the Health Check was only offered in GP practices. Nationally and locally in London, uptake of the Health Check is below the target level of 75 per cent.¹²

The NHS Health Check addressed all of our criteria in our scoring exercise. The NHS HC coverage was unequal at national level, with more deprived populations less likely to attend, addressing our main criteria to foster inequitable access to healthcare.¹³ In Waltham Forest in particular, our PM reported that coverage of the HC was below target levels and therefore a priority area, with particularly European men, BAME groups, Travellers, pregnant women and people with poor mental health all recognized as groups with lower uptake.

The NHS HC was a relevant priority across the consortium and nationally, and importantly, as the Health Check was commissioned by the councils themselves, the programme was delivered across the consortium and we would have a more clear pathway to data collection than some of the other challenges.

¹¹ NHS, "What Is an NHS Health Check?," NHS, November 26, 2019, <https://www.nhs.uk/conditions/nhs-health-check/what-is-an-nhs-health-check-new/>.

¹² NHS Digital and Office for Health Improvement & Disparities, "NHS Health Check Programme," NHS Health Check Programme (NHS Digital, 2018), <https://app.powerbi.com/view?r=eyJrjoiMjllZTU3MGEtZGQwNC00NzI0LWE5YWEtNTBkNGlwMzBmYjQ2liwidCI6IjUwZjYwNzFmLWJiZmUtNDAxYS04ODAzLTU3Mzc0OGU2MjllMiIsImMiOj9>.

¹³ *Ibid.*

We also conducted background research on the effectiveness of the Health Check to ensure it was a worthwhile use of resources. We found that:

- Every 6-10 checks finds someone of high CVD risk
- Every 80-200 checks finds someone with Type II diabetes
- Every 30-40 checks finds someone with hypertension¹⁴

In a number of studies, the HC was found to have increased detection of CVD, diabetes, and hypertension at good rates, and the prescription of statins and other medications is higher for those who have attended a HC. Referral rates to local risk management services are also higher for those who have attended a HC.¹⁵

In addition, we reasoned that a trial to increase uptake of the NHS HC was a worthwhile endeavour for this project considering a return to preventative approaches to medicine post-COVID-19 pandemic and the backlog of patients who may not have received a Health Check, as the programme had been paused throughout the main course of the pandemic. This would also give us buy in from necessary stakeholders such as GPs and others who we would need support from in order to roll out the intervention.

¹⁴ NHS, "What Is an NHS Health Check?," NHS, November 26, 2019, <https://www.nhs.uk/conditions/nhs-health-check/what-is-an-nhs-health-check-new/>.

¹⁵ Oliver Kennedy et al., "Evaluating the Effectiveness of the NHS Health Check Programme in South England: A Quasi-Randomised Controlled Trial," *BMJ Open* 9, no. 9 (September 2019): e029420, <https://doi.org/10.1136/bmjopen-2019-029420>, and L Tanner et al., "NHS Health Check Programme Rapid Review Update" (University of Sutherland and Newcastle University Population Health Sciences Institute, April 23, 2020).

Phase II: Identify – identify our target profile, conduct interviews and gather insights into healthcare barriers

Objectives

The objective of this phase was to gather insights on our target profile's attitudes and to compile a list of potential behaviours to change. This section will discuss:

A. Activities and Key Materials

- i. Identifying the profile of the target for our intervention.
- ii. Insights plan of activities to gather insights.
- iii. Conducting insights gathering activities: interviews, focus groups, and survey.

B. Results

- i. Mapping findings using the ABCD framework.
- ii. Findings from the interviews and survey.
- iii. List of potential behaviours to change.

A. Activities and Key Materials

i. Identifying our target profile

We collected data to identify our target user – the demographic characteristics associated with being least likely to attend the NHS HC. We created a hypothesis-led profile, curated with our background research (see literature review) on which characteristics correlated to lower attendance at the NHS Health Check in NEL: which genders, ethnicities, ages, and other key demographic attributes made someone more or less likely to take up an invitation?

We found that men aged 40 to 59, in lower deprivation deciles, and of all ethnicities were less likely to attend their NHS HC.

Figure 2. Identifying our target population.

IDENTIFYING OUR TARGET POPULATION

We conducted rigorous desk research to determine who was least likely to attend their NHS Health Check in order to gather insights on the barriers to attending NHS HCs for this population, and ultimately design an intervention targeted to this group.

We found that...



Men are less likely to attend their NHS Health Check



Younger people were less likely to attend their NHS HC



People in lower deprivation index deciles were less likely to attend



Research shows mixed results on a correlation between ethnicity and HC attendance

RESULT: Our target profile



MEN



AGED
40-59



DEPRIVATION
DECILES 1-4



OF ANY
ETHNICITY

ii. Creating our insights plan

We used these three questions in our 'insights compass' (below) to list the people to speak to and develop a list of activities to conduct to gain behavioural insights.

As seen in the overview of insights graphic below, we completed:

- A focus group of 3 to 4 residents in each borough.
- 1 to 1 interviews conducted by PMs with individuals who fit our target profile, people who had recently booked or attended an NHS Health Check, and GPs who conducted NHS Health Checks.
- Community outreach was done by a few PMs who went into community hubs to speak to residents.
- A survey was disseminated through Typeform which received a high number of responses from Havering in particular, as the survey was advertised in an internal newsletter.

All of these activities contributed to gathering qualitative and quantitative data about our target population and barriers to accessing healthcare, and why people may or may not attend their NHS HC.

Figure 3. Our insights compass.



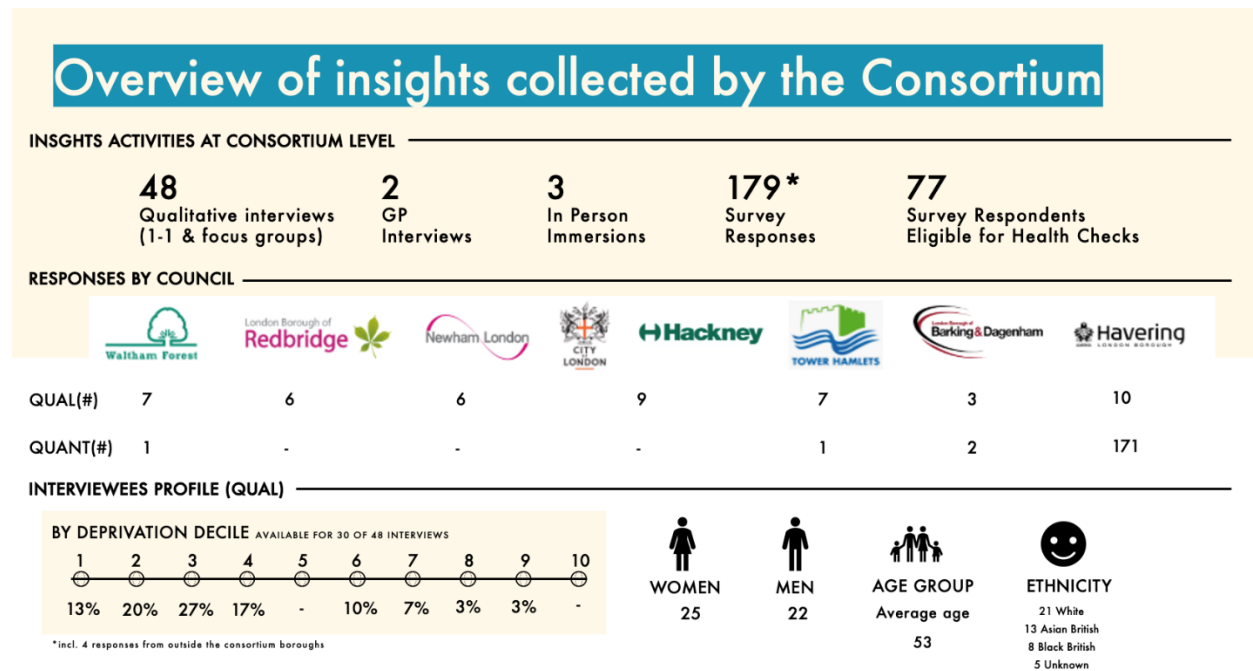
iii. Conducting Interviews and Focus Groups

We compiled a screener with inclusion criteria to recruit interview participants through a recruiter.

We spoke to a total of 48 residents across the consortium through both 1 to 1 interviews and focus groups. As seen below, over 75 per cent of interviewees were in deprivation deciles 1 to 4, nearly half were men, and the average age was well within our target age range.

Our insights gathering is summarised below.

Figure 4. Overview of the number of insights collected by the consortium through interviews and surveys, and interviewees' profile.



Topic Guide

We compiled a topic guide for our semi structured interviews and focus groups.

Using a 'bubble guide', we structured the topic guide for our target interviewees to start with general questions about people's occupations and day to day life, continuing into healthcare attitudes and transitioning into specific questions about the NHS Health Check. We also created a similar topic guide for others who would know about our target users such as GPs. Using our background research on barriers to attending the health check, we were able to map people's reasons for not attending onto a matrix of behavioural drivers and barrier types. See appendix for full topic guides for our target profile and GPs.

Participant Consent

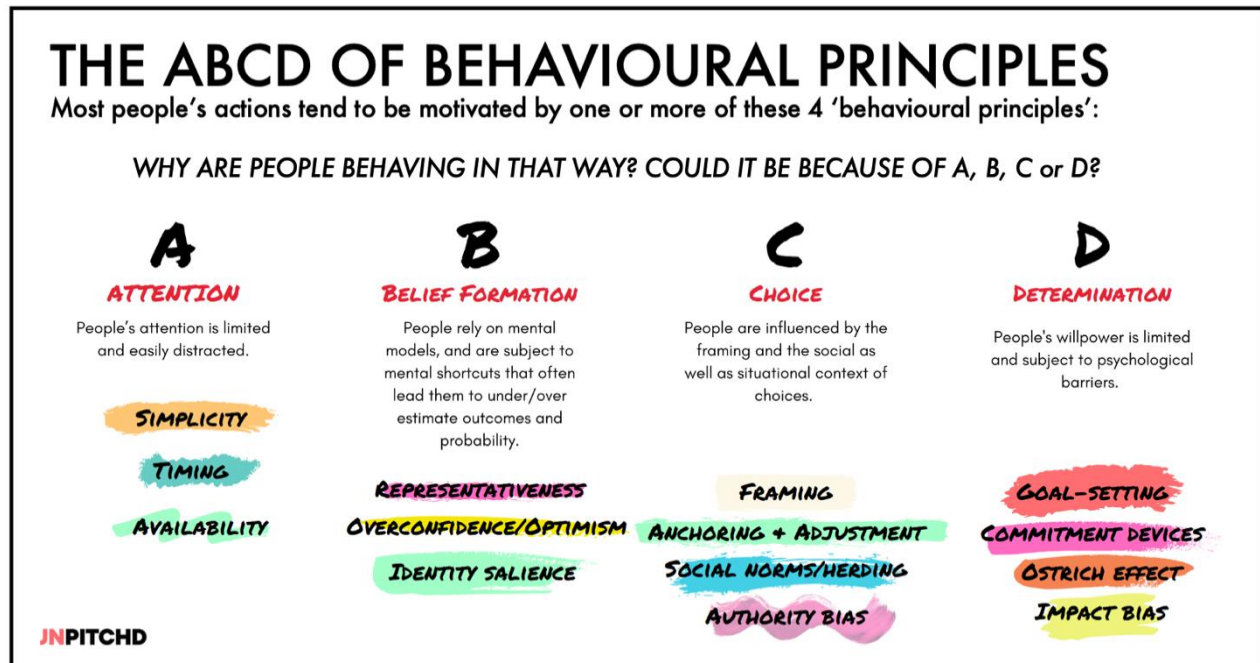
All interviewees were provided with a consent form to sign before participating in an interview or focus group (see appendix).

B. Results

i. Theoretical background: Using behavioural insights to map our findings

We utilised the 'ABCD' behavioural science framework to identify behavioural barriers to healthcare observed in our interviews with residents across the consortium.¹⁶

Figure 5. ABCD of behavioural principles.



The ABCD Framework

We also used the ABCD Framework to categorise behaviours we observed in our interviewees and survey respondents to better understand how we could design an intervention to target these behaviours. We looked at the behavioural principles under each letter in particular and went over several specific examples of each behaviour as a consortium, to upskill our knowledge of behavioural science and better design interventions.

¹⁶ OECD, "Chapter 2. The BASIC Manual," www.oecd-ilibrary.org (OECD, June 18, 2019), <https://www.oecd-ilibrary.org/sites/0507cec0-en/index.html?itemId=/content/component/0507cec0-en>.

The ABCD model proposes that people's actions tend to be motivated by behaviours relating to: attention, such as a task or behaviour change not being perceived as simple or important enough; belief formation about oneself and/or the behaviour; choice, and the framing, delivery, and content of the action; and determination, limited by goals and other psychological barriers.¹⁷

In the context of healthcare, we identified a few most impactful behavioural principles at play – all of the facets of attention were crucial in that people often felt it would be difficult to book in an appointment (NHS HC or otherwise) at a GP surgery, and that they were too busy to go or there were no appointments at convenient times.

Overconfidence/optimism bias was also common, as people felt that they were healthy and did not need to go to the GP, or attend their Health Check. The ostrich effect and impact bias was also an important behavioural principle that we observed, as people often felt that 'ignorance is bliss', and they did not want to know if they had a health issue, or that if they discovered a health issue, they would then have to work to attend to it.

We also used a healthcare access barrier framework, to identify and categorise the types of barriers that people faced, alongside the behavioural drivers of their actions.

Barrier types included:

- Cognitive barriers (such as unawareness of information sources)
- Administrative barriers (such as issues using technology to schedule appointments)
- Communication and information barriers (such as language barriers, misinformation)
- Economic barriers (since the NHS Health Check is free, this would largely include barriers such as unaffordable transport)
- Psycho-social barriers (such as cultural beliefs, stigmas/norms, relationships)

¹⁷ *Ibid.*

Using these two frameworks, we assigned the most relevant verbatim evidence from our insights gathering activities to an observed behavioural principle and healthcare barrier. This allowed us to pinpoint the types of behavioural drivers and barriers that would be most important for us to address in our intervention to increase uptake of the NHS HC for our target group.

ii. Findings from our interviews and survey: Analysis and compilation of target behaviours to change

Figure 6. Note on quantitative survey findings and respondents.

Note on Quant Survey

Our quantitative survey has allowed us to collect responses, primarily for the Borough of Havering (the borough represented 96% of responses)

Responses came in majority from women (84% of responses) and men mostly **outside our target group**.

TO NOTE: Results of the survey remain of general interest, and can inform the broader landscape of NHS health check barriers and insights for the Borough, but do not apply strictly to the target we identified.

OVERVIEW OF QUANTITATIVE DATA:

The quantitative data sample confirmed the general lack of awareness of the NHS Health Checks in Havering.

- c.50% of respondents were eligible for an NHS health-check
- Over 65% of eligible respondents had not heard of or been invited for a health check
 - Generally, awareness of the health check is low, with 50% of respondents stating that this was their first time hearing of the health check
 - 95% of eligible respondents did not know how to access a health check outside of an invite
- The biggest barriers were:
 - Lack of invite from GP
 - Getting an appointment outside of work hours
 - Difficulty phoning a GP/getting an appointment

NHS Health Check barriers and beliefs

Several themes emerged in the quantitative survey responses, most notably a widespread lack of awareness of the NHS Health Check. Over 50 per cent of respondents had not heard about the NHS HC until receiving the Havering newsletter with the survey link. The second most prevalent method for hearing about the Health Check was from the GP. Of the 77 NHS HC eligible respondents to our survey, upon being asked if they have been invited for a HC, 53 had never been invited for a HC, and

six had never heard of the HC. Additionally, 58 had never been to a Health Check, while 20 of our respondents had attended one.

Reported barriers to the NHS HC, by frequency, included getting to an appointment outside of work hours/GP availability, an inability to contact a GP to book an appointment, no invite/unsure if NHS HC invite was received, travel time, the perception that the NHS HC was unnecessary, being unsure how to book one, and being afraid of possible negative results.

“I am worried about bothering the GP for a non emergency appointment”

“I am sensing that it’s merely a going through a motions and is a tick box exercise”

Healthcare attitudes and beliefs

The survey and interviews also collected data on people’s experiences more generally with health services to gauge if there were any more general barriers we could seek to address to increase uptake of the Health Check. We found that booking a face to face appointment at the GP was seen as difficult by many people, long wait times were anticipated in booking as well as at the practice itself, and the NHS was seen as overloaded – therefore people only wanted to put further stress on GPs as a last resort, with the pharmacy seeming to be a more efficient method for dealing with any health symptoms. Many of these beliefs could also potentially be an outcome of the COVID-19 pandemic restrictions.

“[Booking an appointment is] extremely difficult. Even pre-pandemic it was virtually impossible to get a GP appointment when needed. Even then, tendency to treat the symptoms rather than the cause”

“Very poor [experience of health services]. Long waiting times, missed diagnoses...”

We also found that people did not seek out professional medical advice as a first resort, with the majority of respondents reporting that they used the internet, a google search, or the NHS website to find more information about their health. A few respondents listed

a few places they would access, depending on the issue or availability, such as friends and family, books, or the pharmacist.

Interestingly, interviewees outside of our target profile believed that they are generally in good health, with the average survey respondent rating for physical health rated at 7.3/10, yet 49 respondents believed that they needed to go for a health check with a further 10 reporting that they didn't know or it depended.

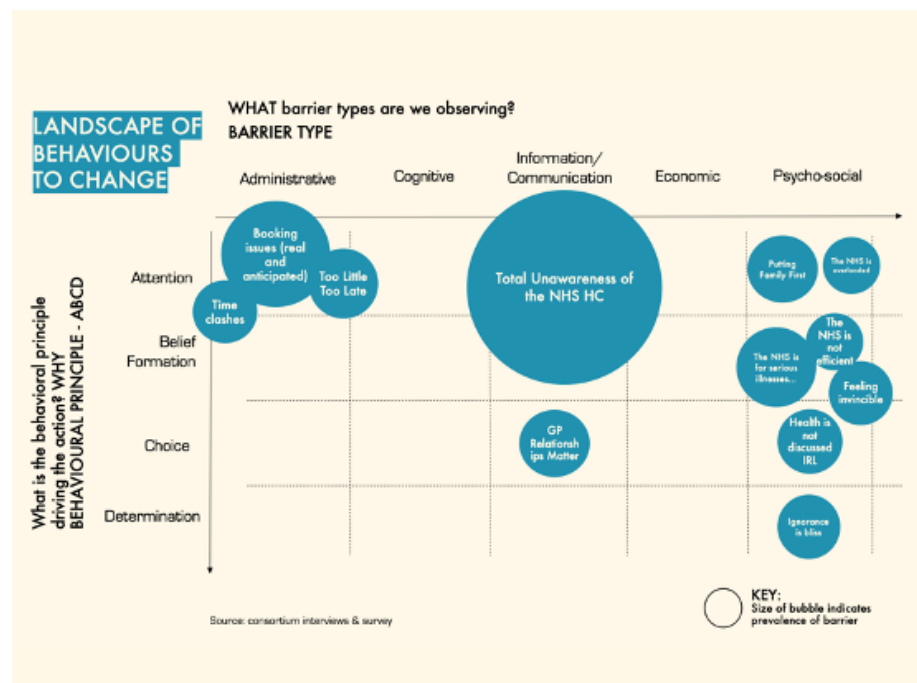
(see appendix for full survey questions)

We consolidated the most useful verbatim quotes from our interviews and categorised them by barrier type and behavioural driver, noting an observed behaviour for each quote. We then mapped the landscape of behaviours to change on the matrix below:

Figure 7. Landscape of potential behaviours to change matrix.

We have identified 12 key 'barriers' to NHS health checks access across the consortium, prevalent for our target group.

Lack of awareness of the health checks is the primary barrier observed, with over 50% of respondents & participants not being aware of their existence. The second most prevalent issue is administrative barriers. In addition, a smaller and very fragmented set of barriers relate to perceptions & beliefs around health and the NHS. There are no cognitive or economic barriers to note. Note: the data doesn't show differences by council



Following the insights mapping, we categorised the 12 key behaviours into three root causes for our next workshop with the consortium, in order to have teams devise potential interventions to target the observed behaviours.

iii. List of potential behaviours to change

Figure 8. 12 key identified target behaviours to change.

The 12 key target 'behaviours to change' can be grouped to 3 'macro' root causes

AWARNESS & ACCESS BARRIERS


 Total Unawareness of the NHS HC


 GP relationships matter

 Time clashes


 Communications are "Too Little Too Late"

NHS PERCEPTION & BELIEFS


 The NHS is for serious illnesses, not prevention

 Booking issues: real and anticipated

 The NHS is not efficient


 The NHS is overloaded

HEALTH & PREVENTION BELIEFS

 Putting Family First


 Ignorance is bliss

 Feeling invincible

 Prevention happens alone and online

The behaviours are outlined in further detail below, with an example of a verbatim quote and matched to the behavioural drivers of each.

Awareness and Access Barriers

 Total Unawareness of the NHS Health Check

Quote: "This is the first time I've heard of the NHS Health Check"

Observation: Patients are often unaware of the Health Check, despite being eligible.

Behavioural Barrier: Attention; Salience: lack of awareness of the Health Check in the first place, the HC has never been presented or seen as an important prevention tool.

Prevalence in Target group: High



GP Relationships Matter

Quote: "Since I've suffered from ill health for a long time, my practice knows I will only contact them when I can't handle whatever is going on...I consider myself fortunate and I think my practice are invested in my community"

“When I was a kid, you had the same family doctor for 20 years, doesn’t happen that way anymore. I don’t think it’s the same as someone who knows you well or personally”

Observation: A close relationship with a GP often results in better access to the Health Check and better recommendations – our target is unlikely to have formed such a relationship. This lack of relationship with a GP can translate into a lack of awareness of the NHS HC and lack of willingness to attend.

Behavioural Barrier: Choice; Authority bias: people do not have an authority on health in their lives (such as a GP) which they can trust on matters related to health

Prevalence in Target group: High



Time Clashes

Quote: “I work 5 days a week...they only pay me if I have holiday...if I don’t work than I lose one day of money.”

Observation: People feel as if they do not have time to go for an appointment and the appointments often clash with working hours.

Behavioural Barrier: Attention; Simplicity, Timing: time clashes – people’s limited cognitive and time resources make it difficult to bring attention to the NHS HC when they stand to lose out on wages.

Prevalence in Target group: High



Too Little Too Late

Quote: Interviewer: If you got a text, what would you do? Respondent: “I may think it’s a scam. So many [texts] are scams, especially with the NHS.”

Interviewer: Would it be better to get it from a GP practice rather than a random text?

All: “Yes.”

Observation: People dismiss a text or other invite based on presentation and content, especially if they do not have a personal relationship with their GP and/or have not heard of the Health Check before.

Behavioural Barrier: Attention; Salience: The HC is not presented in an effected and personalised way via invite, leading people to dismiss it as spam or unimportant.

Prevalence in Target group: Medium

NHS Perceptions and Beliefs



The NHS is for 'Serious Illnesses', Not Prevention

Quote: "If I was one of those people who had to go to the GP regularly, it'd put me off. So for me, its easier to go to a pharmacist..."

Observation: People associate going to a 'real' doctor with having an illness, not for a check. For prevention, people go to the pharmacist or Google!

Behavioural Barrier: Belief formation; Representativeness: people believe that GPs are for serious existing issues rather than prevention. Following the pandemic and health crisis, this belief is likely to expand and continue.

Prevalence in Target group: High



Booking Issues (Real and Anticipated)

Quote: "A lot of [bookings] are done through links, like I said I've called the GP up, and they've sent a link, to take a picture of something and you send it to the GP and they phone you back and give a consultation, so they've been quite helpful. I don't know why GPs aren't doing face to face at the moment...I've sent a picture in about something and I've gone to see the GP face to face. Everything is through the link. Its fine for me, but for elderly people who cant use these services how are they getting on?"

Observation: People anticipate issues when they must phone or book an appointment or Health Check at the GP before they even try. Evidence also shows that if you have not been invited, it is extremely difficult to get a NHS HC, even if you are eligible.

Behavioural Barrier: Attention; Simplicity, Goal setting: most people, once they were told about the Health Check, were motivated to go and intended to go. However, technical challenges stood in the way of booking.

Prevalence in Target group: High



NHS Efficiency and Effectiveness Beliefs

Quote: “Firstly, I don’t think waiting 5 years is good...and what are they going to do in [20 to 30 minutes]?”

“I am sensing that it is merely going through the motions and is a tick box exercise.”

Observation: People have not heard of the NHS HC, but they do project onto it all of their inner beliefs about the NHS (namely that it is inefficient and the check will be ineffective).

Behavioural Barrier: Belief formation; Overconfidence, Representativeness: Previous experiences affect their perception of the system. People believe that they know better than “the institution”.

Prevalence in Target group: Medium



NHS Overload

Quote: “Its either overloaded or there’s a problem there. Trying to get an appointment, you go on social media and everyone is complaining about how difficult it is to get an appointment, generally its tough. ”

“I don’t want to take someone else’s space.”

Observation: People feel that the NHS is overbooked due to what they’ve seen on social media/heard through word of mouth, and they do not want to overburden for an appointment which doesn’t feel essential. This is likely to be emphasised by the pandemic.

Behavioural Barrier: Belief formation; Representativeness: People have preexisting perceptions of the system based on experience.

Prevalence in Target group: High

Health and Prevention Beliefs



Time Clashes

Quote: “I’m not sure I have that much faith in my GP surgery. I emailed them at times, although that’s quite often more for sort of functional admin stuff and updates, or

just maybe general queries, but I don't spend that much time interacting with my GP surgery...If it's for the kids...NHS 111 or website, I think, brilliant. And for the wife...it's always GP."

Observation: People in our target often take care of the health of their family members before their own health. It is likely that their only interactions with health practitioners is to help members of their family.

Behavioural Barrier: Attention; Salience, Availability: People do not think that their own health is a priority over that of their spouses or children.

Prevalence in Target group: Medium



Ignorance is Bliss

Quote: "If I'm honest, at the company I work for every year we get a blooper one and I've gone twice. I'd probably ignore [the health check invite] to be honest...I'm waiting to get into a good position to go to one maybe? For one of the blooper ones, my BMI was quite high. But it could be a good warning"

"I'm a great believer in what you don't know you don't know, so I won't have it done"

Observation: People do not want to risk hearing bad news because they think that knowing about the problem is the issue, or indeed will aggravate the issue.

Behavioural Barrier: Determination; Impact bias, Ostrich effect: People are avoiding the information or additional effort required (mental and physical)

Prevalence in Target group: Low



Superhero Complex

Quote: "...when you're younger you think nothing's going to happen, but then you get a bit wiser and prevention is better than cure. If they can spot something earlier it can be treated. I guess now...because my mom developed cancer and we found out late, and when I think about it..."

Observation: People in our target do not feel urgency for a Health Check and overestimate their own fitness; they cite their age or general fitness as a way to put off seeing a medical professional.

Behavioural Barrier: Attention; Availability bias: the examples that come to mind or don't inspire action or don't seem urgent enough

Belief formation; Optimism bias: people underestimate the likelihood that certain medical issues will happen to them (or a family member/friend)

Prevalence in Target group: Low



Time Clashes

Quote: "[I'd search for health information] usually online first."

Observation: Health research is something people most often do alone, and largely do online, rather than share with each other. That means they rarely talk to their friends or family about Health questions that often disappear 'In Real Life'.

Behavioural Barrier: Choice; Social proofing: People will copy the actions of others to conform to the social norm.

Prevalence in Target group: Medium

Phase III: Design – using insights from our interviews and survey, design an intervention targeting healthcare access barriers

Objective

In this phase, the objective was to use the insights that we gathered about our target profile to design a behaviourally informed intervention to launch.

A. Activities and Key Materials

- i. Stimulus Gallery
- ii. Long list of potential interventions
- iii. Short list of interventions and scoring

B. Results

- i. Our intervention: SMS and voice note
- ii. Data availability

A. Activities and Key Materials

i. Stimulus Gallery

We compiled a ‘stimulus gallery’ of behavioural interventions to draw inspiration from in the design of our own intervention. Stimulus came from a variety of interventions from different behavioural interventions to draw inspiration from in the design of our own intervention industries, using a variety of ‘nudges’ and behavioural principles which we had studied as a consortium during the ‘Identify’ phase. Examples included using social proofing to decrease energy usage, improving return to work outcomes using identity salience, goal setting, and commitment devices, and previous public health trials with the LGA.

ii. Our long list of potential behavioural interventions

After a consortium workshop, we had seven potential interventions to select from. We created a slide deck to send to the consortium, with information about each intervention, such as the steps for implementation, how we would measure success, as well as what specific data points we needed to measure and how we would collect it.

Above the Line Campaigns



Superhero

Issuing a 'superhero' comms using a superhero or other real world motivational individual visual with reference to the CVD component of the NHS Health Check. The comms would picture the motivational individual having their blood pressure checked – with strength coming from 'being responsible'.



True Cost of Prevention to the NHS

Leaflet attached to the Health Check invite describing how missing an appointment could cost the NHS, myth busting the perception that people are 'saving' the NHS by not attending prevention appointments.

Targeted Messaging to Improve Invite Responses



Prevention Pathway

Leaflet visualising a family's interactions with the NHS over the course of a lifetime, highlighting the Health Check as a rite of passage and a way to take care of your family as well as the NHS.



"People Like Me" Testimonial

A testimonial sent via text or letter attached to the Health Check invite, targeting different health beliefs by using authority bias/social proofing (people in the neighbourhood of a similar background) to show experiences with the NHS Health Check; to be used in conjunction with another strategy.



Voice Notes

A voice note attached to SMS invite to the NHS HC (potentially from someone in the community, or a 'people like me' testimonial) describing a positive experience with a Health Check and how it has benefitted them.



Referral Schemes

Using previous health check attendees to encourage their partners and loved ones to attend, by sending simultaneous invite text messages to attendee partners and target partners.

Practical Interventions



Coming to Them

This is a practical outreach intervention designed to increase awareness of the Health Check for targets by 'coming to them where they are', in pubs, barbershops, markets, and other local gathering places. The outreach could also include a partial Health Check to be completed at a GP.

Short list of interventions and scoring

Our criteria was inspired by the APEASE framework, however we adjusted some to suit the specific needs of our project.¹⁸ Our criteria for intervention scoring:

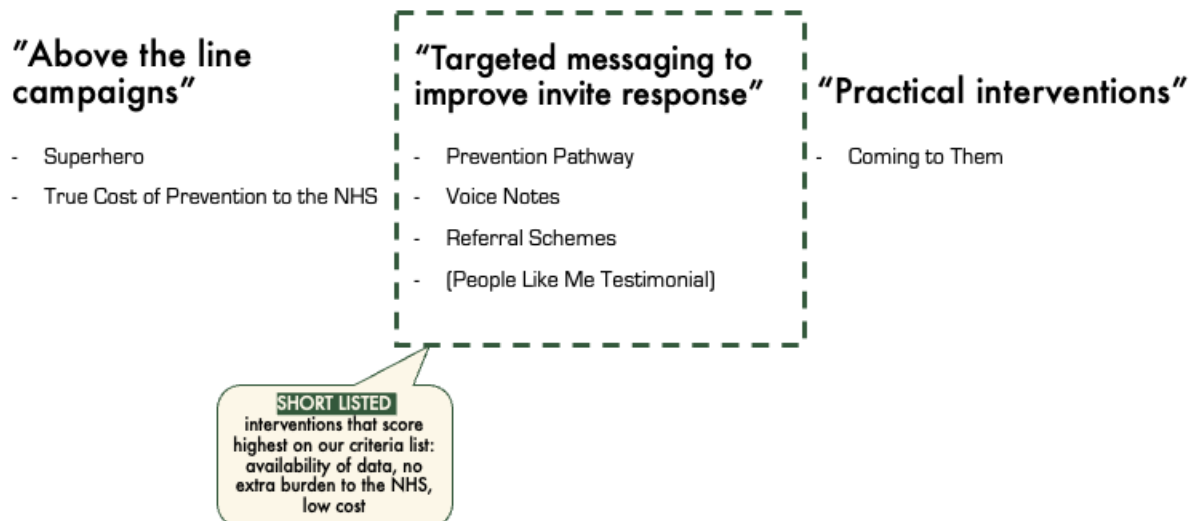
¹⁸ Public Health England, "Achieving Behaviour Change: A Guide for Local Government and Partners" (London: PHE Publications, November 2019).

Figure 9. Intervention criteria.



We used the ‘stargazer’ technique to score our potential interventions against our criteria, ranking each intervention from 1 to 5 against each criteria, with the highest scoring interventions moving forward. The behavioural interventions we designed fell into three categories, with the category of “targeted messaging to improve invite response” becoming our shortlist as it satisfied most of our criteria.

Figure 10. List of potential intervention and shortlist.



B. Results

i. Our intervention: SMS and Voice Note

Our intervention: SMS

Standard Text Example from Spring Hill Practice (City and Hackney)

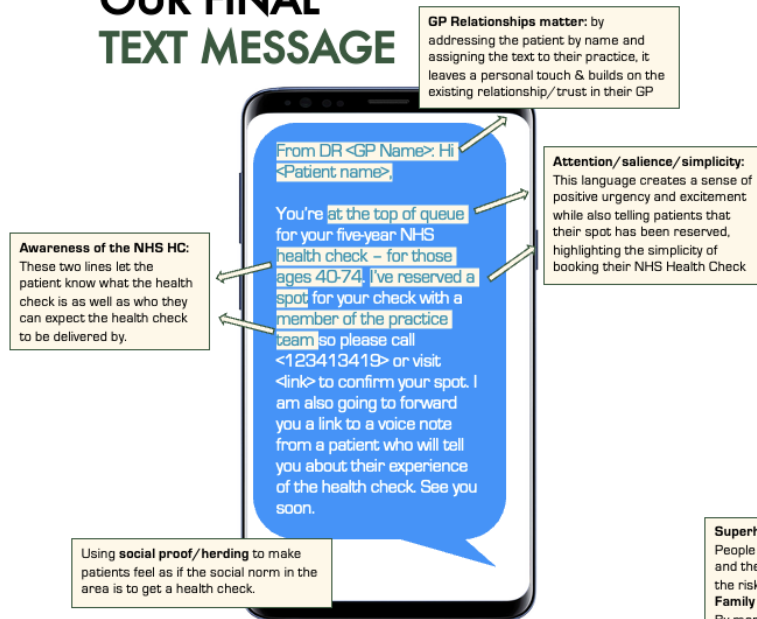
“Dear (Patient Name), Anyone over the age of 40 is eligible for a free NHS Health Check. Please call the surgery on 020 8806 6993 to arrange your appointment. Thank You, Spring Hill Practice.”

Our Text and Voice Note transcript

Including behavioural principles used and behaviours in our target group addressed. Our text was slightly longer and more detailed to use some behavioural principles to specifically address the behavioural barriers and attitudes of our target group.

Figure 11. Final text message and voice note scripts with behavioural principles and target behaviours to change highlighted.

OUR FINAL TEXT MESSAGE



OUR FINAL VOICE NOTE

"Hi, James here. I had an over 40 NHS Health Check at your practice last Tuesday, I've been saying I was going to do this for a while but it was your text that actually got me to book it in. While I've got the all clear now, I really wanted to thank your team as I really felt the check was worth my time. I was given a lot of advice on reducing the risk of future issues like heart disease. These are things you know you should know more about, and they weigh on your mind, but with kids and a busy work schedule they never really get the space or attention they need. I now feel a lot more clued up. It's the first step, and I will continue to stay on top of my health with support like this. Thanks for all the great advice, and thanks making it easy."

Superhero/Optimism Bias
People are often overconfident in their health, and the speaker touches on this by mentioning the risk of future issues

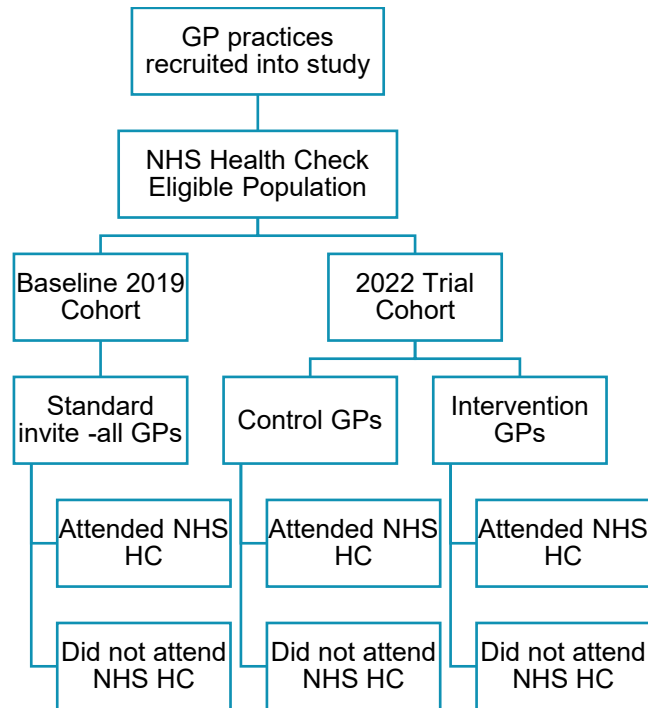
Family First
By mentioning their kids, the speaker touches upon putting their health first in order to take care of their family members, addressing the 'family first' barrier we observed

Our intervention: Voice Note

We worked with a community engagement officer in Redbridge to recruit a resident who had recently attended their NHS Health Check. We provided some talking points for the resident to touch on which addressed some key behavioural barriers and principles. We then developed this into the SMS voice note.

ii. Trial Design

Figure 12. Overall simplified trial design.



iii. Data Availability

Before we sought out GP surgeries to run the trial, we wanted to check and ensure that the data we needed to measure the effect of the intervention was available. We issued a table for PMs to fill out regarding the availability of data, particularly around the Health Check, at surgeries in their borough (see appendix for full data availability questionnaire).

Phase IV: Launch and Run – preparing the trial, trial design

Objective

The objective of this phase was to plan and launch the intervention in partnership with GP surgeries. This section will discuss:

A. Activities and Key Materials

- i. Recruitment
- ii. Trial Design and Methodology
- iii. Data Collection
- iv. Onboarding materials

B. Roles and responsibilities of UNPITCHD, the consortium, and our GP partners for the launch

C. Results

- i. List of trial practices
- ii. Intervention launch

A. Activities and Key Materials

i. Recruitment

Individual PMs recruited GP surgeries in their respective boroughs using a number of methods:

- Using Primary Care Networks (PCNs) to efficiently reach out to and recruit a number of practices (Redbridge, Havering)
- Using existing relationships between NHS HC leads and GPs (Redbridge, Havering)
- Using the Clinical Commissioning Group (CCG) (Newham)
- Cold emailing GPs in the consortium
- Targeting large, high performing practices in the borough to reach out
- Targeting practices in more deprived areas

- Attending and pitching the trial at monthly GP webinar (Newham)

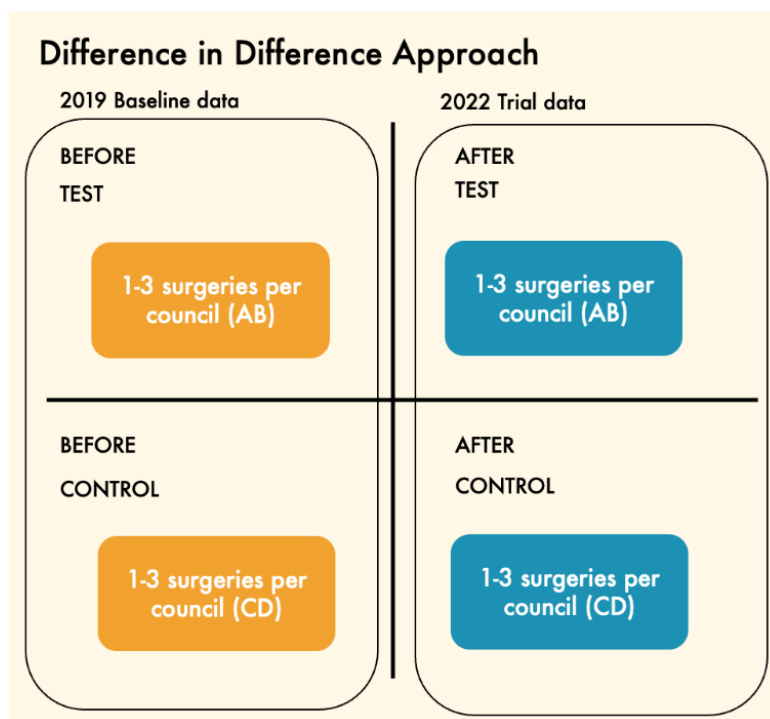
We found that PCNs worked well to find practices, but once onboarded it would be more efficient to go directly to practices rather than through PCN managers. We also tried to use a newsletter blurb to recruit, however this did not yield any partners.

Recruitment materials can be found in the appendix.

ii. Trial Design and Methodology

We designed the trials following a difference-in-difference approach, measuring the difference of attendance at the NHS Health Check at the baseline period and trial period, between control and intervention GPs. Power analysis can be found in the appendix.

Figure 13. Difference in difference approach with estimated practice number sample sizes.



iii. Data Collection Setup: EMIS Search

EMIS is a software utilised by practices to track patient information, including NHS Health Check invites and attendance. We wrote a 'search' for EMIS which allowed us to search for and extract data on patients who have been invited to NHS Health Checks (note: EMIS does not track NHS booking data).

The EMIS Search was completed in conjunction with UNPITCHD and the CEG to ensure that it would collect all the relevant data we needed to measure the intervention. 'Code term' refers to how the invite, smoking status, or HC attendance was 'coded' or noted; this bears the greatest importance for HC invite as this code term is indicative of the method of invite (SMS, letter, verbal/opportunistic, phone, or other).

Figure 14. EMIS Search mock up with our extracted data categories.

The mockup is divided into two main sections: 'EMIS Search Criteria' and 'Patient Details'.

EMIS Search Criteria:

- A blue header bar labeled 'EMIS Search Criteria'.
- On the left, a white box labeled 'Filter for NHS HC eligible population'.
- On the right, three white input fields: 'Current Listsize', 'Current NHS Health Check Eligible Population', and 'Excluding at Risk'.

Patient Details:

- A blue header bar labeled 'Patient Details'.
- Below the header, five white input fields: 'Anonymised Identifier', 'Age', 'Gender', 'Ethnic Origin', and 'Lower Layer Area (LSOA)'.
- Below these, three blue buttons: 'Smoking Status', 'NHS HC invite/offered', and 'NHS HC Done'.
- Under each blue button, there are two white input fields: 'Code Term' and 'Date'.

iv. Onboarding Materials

UNPITCHD prepared an onboarding deck to be shared with GP surgery managers and teams who were brought on to deliver the trial. The deck included:

- A brief summary of the trial and relevant stakeholders

- A pitch detailing the revenue gains for practices as a result of increased attendance to the NHS HC
- The protocol and methods of the trial
- The new text message
- Next steps: signing a data sharing agreement and changing the text message in AccuRx for intervention surgeries

B. Roles and Responsibilities

UNPITCHD

UNPITCHD worked to find a method for data collection and extraction, onboarded GP surgeries, and sent out the information pack at trial launch. UNPITCHD also worked with the CEG to write the EMIS search.

Consortium

Consortium PMs recruited GP surgeries, liaised with the Clinical Effectiveness Group and helped to find a data collection method.

Additional Partners

The Clinical Effectiveness Group (CEG) at Queen Mary University of London was a critical ally in data collection. The CEG is a not-for-profit unit which works in partnership with the eight councils in NEL, 47 Primary Care Networks, and 272 GP practices, and use data to improve population health. They ran data extraction on behalf of UNPITCHD and our partner GPs.

We also had a number of Information Governance Officers (IGOs) and data protection specialists in councils (Havering and Redbridge) review our data sharing agreement to ensure that the agreements clearly outlined the purposes and details of our trial and asked for appropriate data.

C. Results of Phase IV

i. Trial Partners – list of GP surgeries recruited and onboarded

Borough	Practice	Control or Intervention
Barking and Dagenham	Ripple Road	Control
Barking and Dagenham	Aurora Medcare (King Edwards Medical and Thames View)	Intervention
City and Hackney	Lower Clapton Practice	Intervention
City and Hackney	Spring Hill Practice	Intervention
City and Hackney	Lawson	Control
Havering	Maylands Healthcare	Intervention
Havering	High Street Surgery	Control
Havering	Lynwood Medical Centre	Control
Havering	Wood Lane Medical	Intervention
Newham	Upton Lane Medical Centre	Intervention
Newham	Boleyn Medical Centre	Control
Redbridge	The Loxford Practice	Control
Redbridge	Mathukia's Surgery	Control
Redbridge	Ilford Medical Centre	Control
Tower Hamlets	Wapping Group Practice	Intervention
Waltham Forest	Lime Tree Surgery	Intervention

ii. Trial Launch

The trial was launched on 7 March 2022 and ran until 29 April 2022.

Ahead of trial launch, practices were sent an information pack containing critical material to support them with the trial:

- A refresher on the context and purpose of the trial
- A table of control and intervention practices for reference

- Trial materials (the new SMS and link to the voice note)
- Data sharing agreements
- Contact information
- A checklist of next steps

Phase V: Analysis

Objective

The objective of this phase was to assess the effectiveness of the intervention we designed and ran in GP surgeries.

This section includes:

- A. Data overview (structure and sample sizes)
- B. Data Lexicon
- C. Key findings
- D. Detailed findings
- E. Data Context
- F. Recommendations

A. Data Overview

The impact of the intervention is assessed using two key data sets

1. Reported NHS HC booking data (Survey completed by each GP surgery)¹⁹
2. Observed NHS HC attendance data (from EMIS)²⁰

¹⁹ Data collection was completed by practice staff in individual surgeries (surveys completed between 10 May – 25 May 2022).

²⁰ Data collection was completed by our partners in the CEG in the early weeks of May 2022 for our baseline data from the 1st financial quarter of 2019 (1 April – 30 June 2019) and trial data (7 March – 29 April 2022).

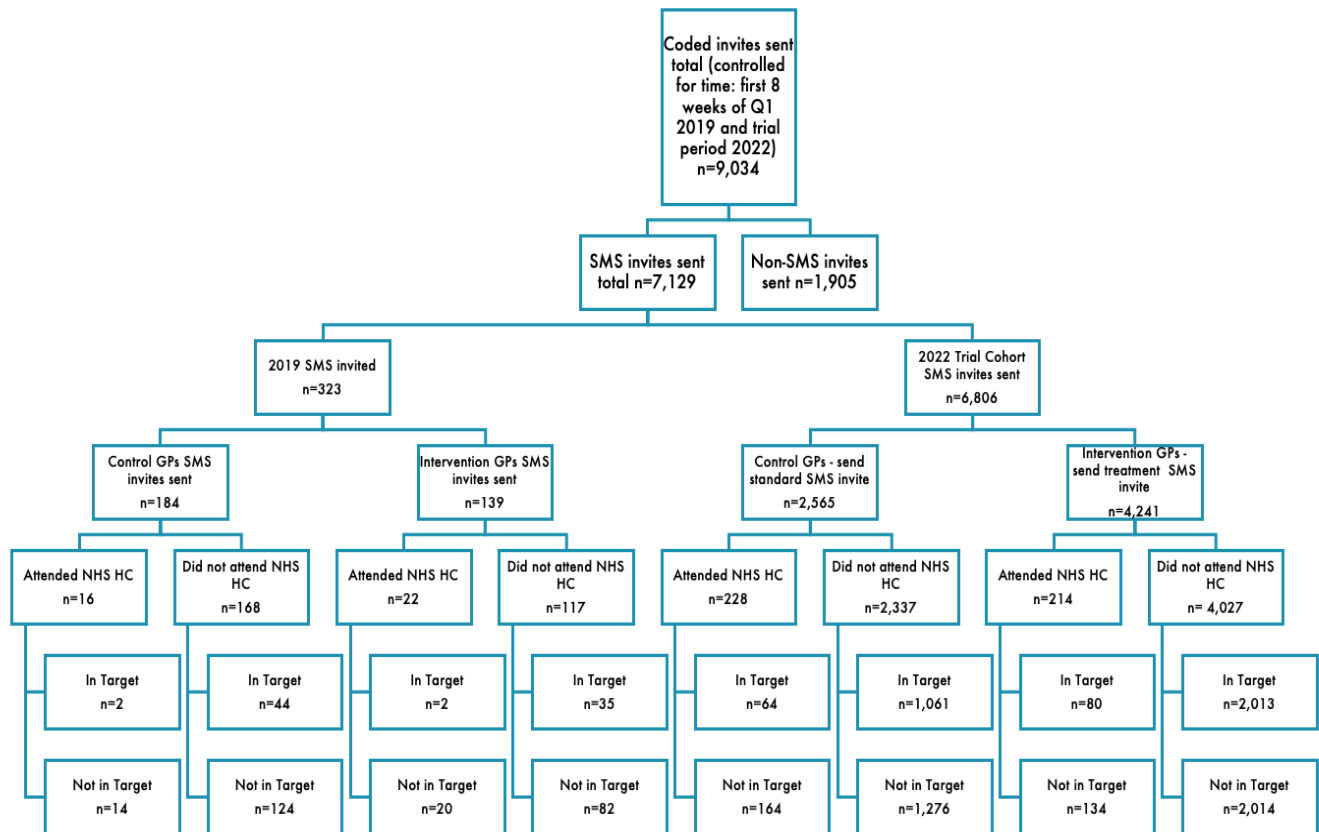
Figure 15. High level data overview table

Data sets	Metrics included (high-level)	Purpose	Sample sizes	Collection method	Time periods	Caveats & Limitations
Reported Health checks bookings	<ul style="list-style-type: none"> - Qualitative assessment of the trial by all participating surgeries - Perceived increase in Booking inquiries, Booking and Attendance by gender, age and ethnicity over the trial period 	<ul style="list-style-type: none"> - Provide contextual data on the realities of running the trials within the practices - Provide a quantitative measure of the success of the trial through booking rates 	<ul style="list-style-type: none"> - 80% completion rate - 13 participating surgeries have completed the survey - 8 intervention 5 control 	Lead admin at surgeries have filled out an online survey	7 March – 29 April 2022	<ul style="list-style-type: none"> - Relies on reported perception not observed bookings - More intervention surgeries reporting than control - Three intervention surgeries reported not being able to book in everyone who inquired
Observed attendance to Health checks (Q1 2019 and 7 March to 29 April 2022)	<ul style="list-style-type: none"> - Observed attendance to HC by modality of invite, age, gender, deprivation decile, ethnicity for control and trial surgeries 	<ul style="list-style-type: none"> - Provide a quantitative measure of the success of the trial through attendance 	<ul style="list-style-type: none"> - 16 participating surgeries - Over 2,000 people in our target profiles were invited by SMS - See full breakdown in sample 'tree' overleaf 	CEG extracted on our behalf	First 8 weeks of 1 st quarter of 2019 (April 1 - May 31 2019) and 7 March – 29 April 2022	<ul style="list-style-type: none"> - Two councils do not have control practices - Two surgeries excluded due to hidden data/software - Only coded invites included in analysis - Time lag: continued effect of the intervention likely to continue after the end of the observation period - No booking data - Cannot track voice note listens

Figure 16. Table of reported bookings – sample size for intervention and control

Borough	Practice	Control or Intervention	Survey Response
Barking and Dagenham	Ripple Road	Control	Yes
Barking and Dagenham	Aurora Medcare (King Edwards Medical and Thames View)	Intervention	Yes
City and Hackney	Lower Clapton Practice	Intervention	Yes
City and Hackney	Spring Hill Practice	Intervention	Yes
City and Hackney	Lawson	Control	Yes
Havering	Maylands Healthcare	Intervention	No
Havering	High Street Surgery	Control	No
Havering	Lynwood Medical Centre	Control	Yes
Havering	Wood Lane Medical	Intervention	Yes
Newham	Upton Lane Medical Centre	Intervention	Yes
Newham	Boleyn Medical Centre	Control	Yes
Redbridge	The Loxford Practice	Control	No
Redbridge	Mathukia's Surgery	Control	No
Redbridge	Ilford Medical Centre	Control	Yes
Tower Hamlets	Wapping Group Practice	Intervention	Yes
Waltham Forest	Lime Tree Surgery	Intervention	Yes

Figure 17. NHS HC observed attendance: sample size for intervention and control.



B. Data Lexicon

- Attendance/attendee: A patient who was invited to and subsequently attended their NHS Health Check.
- Invite: Any invite to the NHS Health Check.
- Coded Invite: An invite to the NHS Health Check with a 'code' indicating the date sent and method of invite, for example, Letter, SMS, or Verbal/Opportunistic invite.
- Note: only coded invites have been included in the analysis.
- SMS Invite: An invite to the NHS Health Check coded as an SMS/text message.
- Reporting booking: the reported level of patients who inquired about booking and/or booked an NHS Health Check over the course of the trial.

- Observed attendance: Invited patients who attended their Health Check within the time period indicated below.
- Time period:
 - 'Baseline' refers to the first quarter of 2019, which provided the pre-pandemic time frame for the difference in difference approach and ran from 1 April to 30 June 2019, however we have controlled for the difference in number of weeks by only analysing at invites and attendance within the first eight weeks of the quarter.
 - 'Trial period' refers to the entirety of the trial period, which ran between 7 March 2022 and 29 April 2022.

C. Key findings

Reported bookings²¹

Intervention practices reported a higher increases in booking inquiries and booking rates than control practices.²²

It is important to note that three intervention GP surgeries reported that they could not book in all of the patients who inquired about an NHS HC.

Booking data reported by GP staff shows that our trial was more successful with increasing uptake for men than women.²³

Booking data also suggests that gender is the key indicator of our intervention success, as intervention surgeries did not report an increase in bookings for our target age range or income levels (perceived).²⁴

²¹ 13 of 16 practices reporting.

²² See Figure 18

²³ See Figure 19

²⁴ See Figures 20 and 21

Observed Attendance

Overall, observed attendance was slightly lower (7 per cent) in intervention surgeries (across all demographics). However, attendance for our target group was higher (20 per cent) in intervention surgeries, suggesting that the trial was overall successful.²⁵

Indeed, we observe that both booking interest (reported) and attendance (observed) have been depressed for the non target population. This data suggests that alignment between the target profile and the receiver is essential and would suggest that the core behavioural principle activated by the intervention (especially being influenced by people 'like you') has effectively been successful.

As a result, more men, between the ages of 40 to 59 and lower deprivation deciles have attended their HC in the Intervention group. But the intervention has also possibly had paradoxical and unintended effect on women and older men in the intervention group who have comparably attended the trials less than in the control group.

In addition, we found that while the phrasing of the invite ("a slot is pre-booked") for you has been well received by the patients, this has also led to frustrations if slot availability was limited at the surgeries.

Key recommendations to the Councils on the consortium and Local Government more widely include:

- The further testing of key messages for different demographic groups to inform the adoption of behaviorally informed text message and supporting voice note as invites to the health checks, tailored to key demographic attributes such as gender and age. A gender specific approach to the communications related to NHS Health Checks seems essential.
- The availability to translate the invite into more languages than English as a key feature of the updated communications

²⁵ See figures 23 and 24

- Finally, to remedy the frustration of patients who were invited but unable to book a Health Check, we also recommend invites consistent with the GP surgeries' availability
- The launch and roll out of an 'above the line' awareness campaign for the NHS HC (lack of awareness of the HC were indicated as the primary barrier to attendance during the research phase)

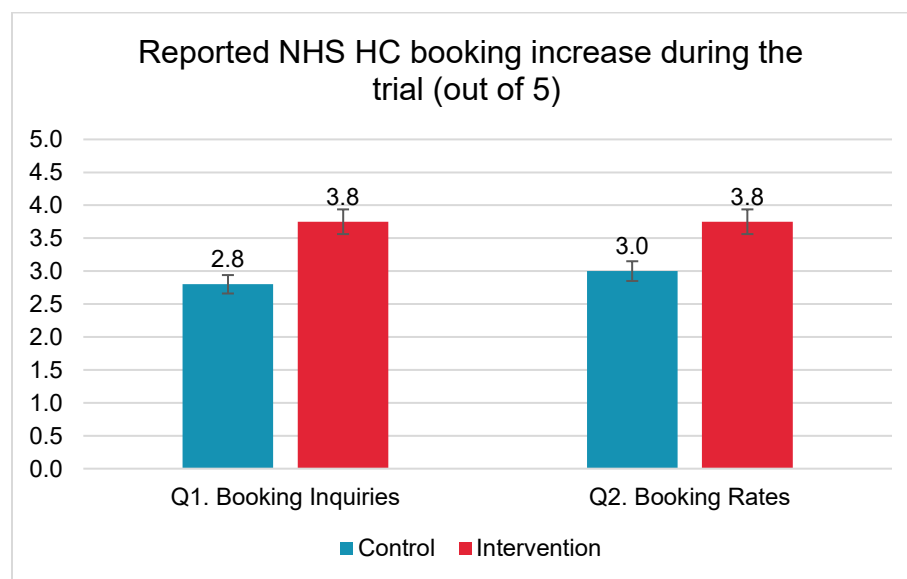
D. Detailed Findings

Reported bookings

Overall reported booking inquiries and booking rates (across all demographics)

Overall, GP staff have observed a greater increase in NHS HC inquiries and bookings in the intervention surgeries over the course of the trial.

Fig. 18



Q1. Have you noticed an increase in people *inquiring about booking* an NHS Health Check at your practice during the intervention?

Q2. Have you noticed an increase in NHS Health Check *booking rates* at your practice since the onset of the intervention?

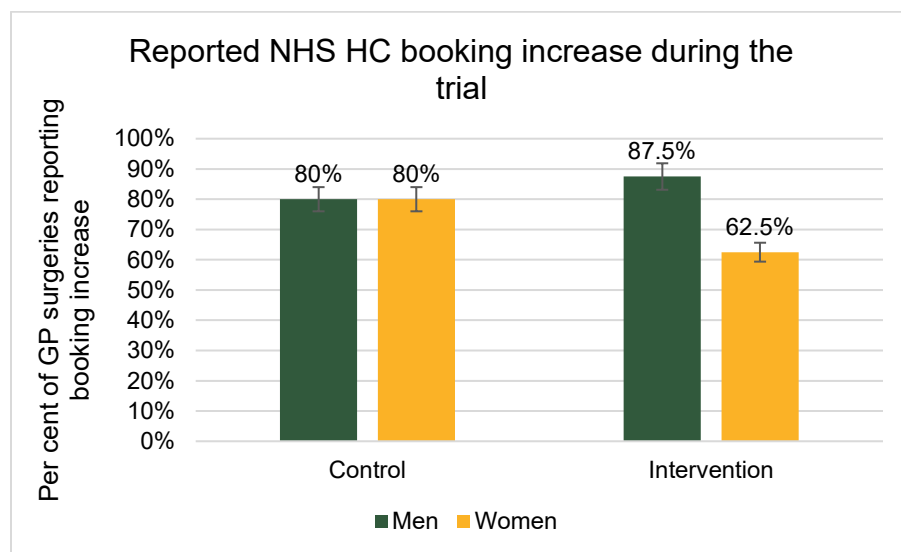
Reported booking rates by gender

GP staff in the intervention group have observed a greater increase in bookings and inquiries from men than women; there was no difference across genders for surgeries in the control group.

c.88 per cent of Intervention practices have noticed an increase in bookings and booking inquiries from men and only 62 per cent from women.

The increase in perceived booking was the same for men and women in the control group, suggesting that gender plays a role in the impact of the intervention.

Fig. 19



Q3. Have you noticed an increase in bookings and booking inquiries from men?

Q4. Have you noticed an increase in bookings and booking inquiries from women?

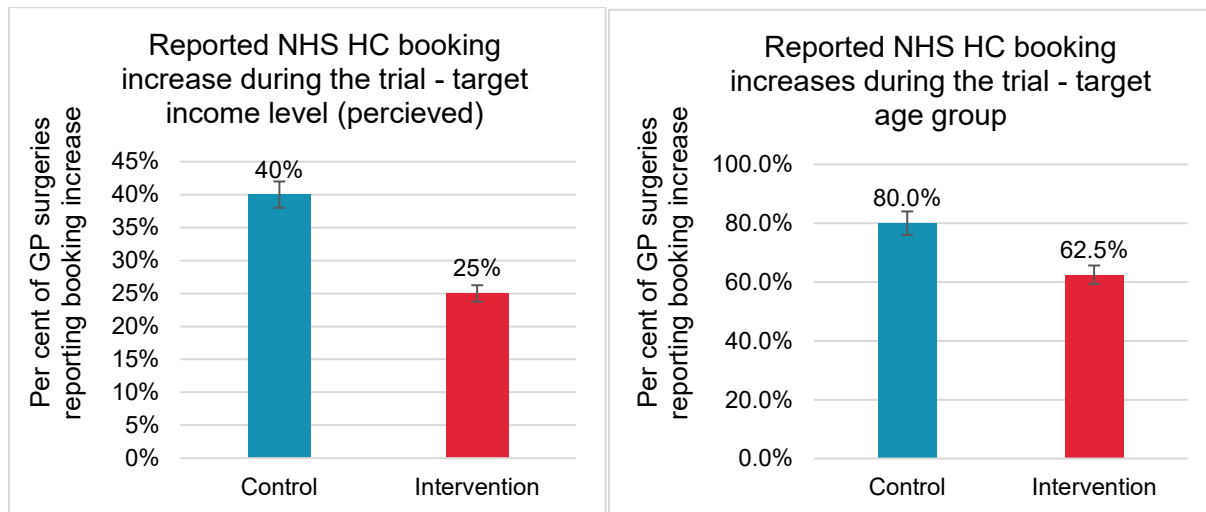
Reported booking rates for target age range and income

GP administrators in the intervention group have reported a lower increase in HC bookings in the target age group than those in the control group. Only 62.5 per cent of intervention surgeries compared to 80 per cent in the control group have noted an increase in bookings for our target age.

GP admins in the intervention group have reported a lower increase in HC bookings in the target income group than those in the control group.

Only 25 per cent of control surgeries compared to 40 per cent of surgeries in the intervention group have noted an increase in bookings for our target income level (lower income bracket); Most surgeries have noted an increase for the 'middle income' bracket; none have noted an increase for the high income level.

Fig. 20 and 21



Q5. Q6 Have you noticed an increase in bookings and booking inquires rom patients aged 49 to 60?

Q7. Q.8 Have you noticed an increase in bookings and booking inquires from patients in low / middle / high income brackets? (as perceived)

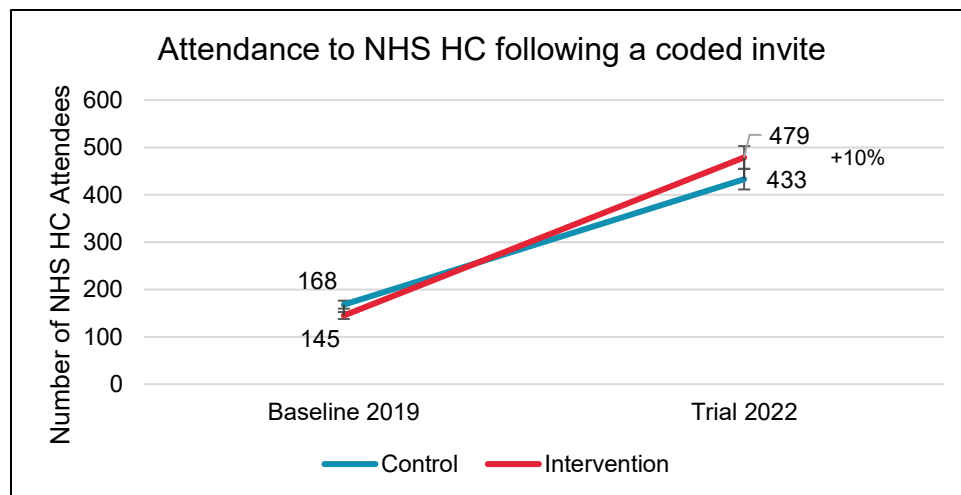
Notably, Lower Clapton and Wood Lane (two intervention GP surgeries with noted limited capacity) also noted an increase in men, people in our target age group, and lower and middle income groups both inquiring about and attending their NHS Health Check. Lower Clapton also rated the highest increase in inquiries and booking and NHS HC, rating both at 5/5.

Observed attendance

Overall observed Attendance for patients who received all forms all invites (all demographics)

Of patients who received (coded) invites, 10 per cent more patients attended their NHS Health Check in the intervention group than in the control group.

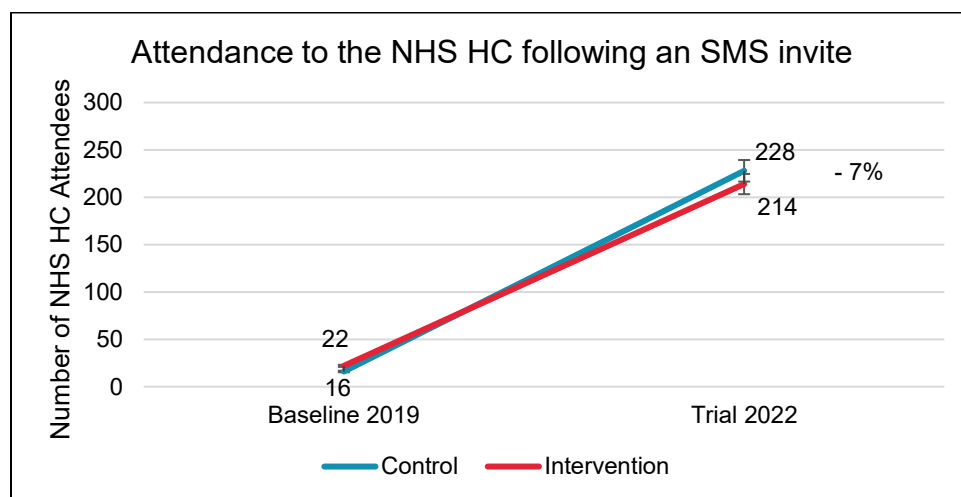
Fig. 22²⁶



Overall observed attendance for all patients invited by SMS (excluding other coded forms of invitation, all demographics)

Overall, observed attendance was slightly lower (7 per cent) in intervention surgeries (across all demographics).

Fig. 23²⁷



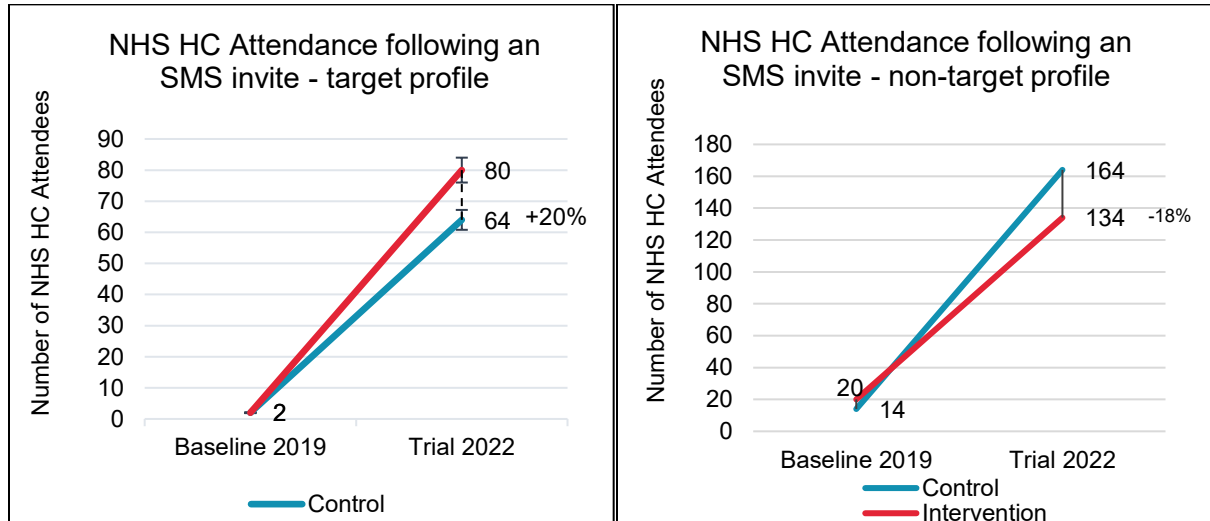
²⁶ 2019 $p < .00001$, 2022 $p < 0.01$

²⁷ 2019 $p = .002$, 2022 $p < .00001$

Observed attendance for targets

For our target profile, the number of attendees in the intervention group increased more than in the control group, with 20 per cent more targets attending their NHS HC in the intervention group than in the control group.

Fig. 24 and 25²⁸

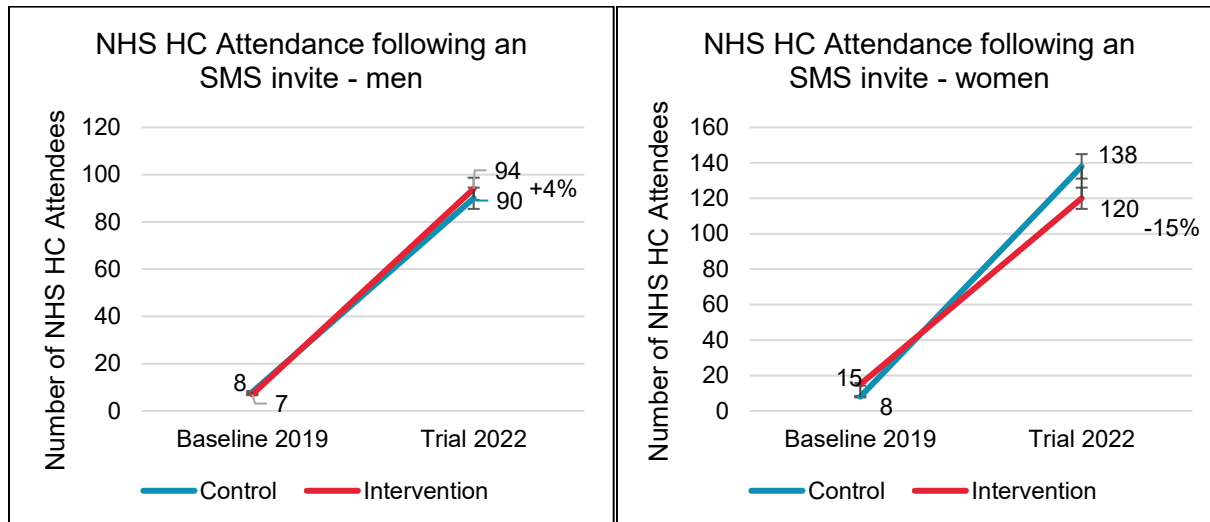


²⁸ Fig 24: 2019 $p > 0.05$, 2022 $p = 0.01$; Fig 25: 2019 $p < 0.04$, 2022 $p < 0.00001$

Observed attendance by gender

We observed that the intervention was slightly more successful in increasing uptake for men than women.

Fig. 26 and 27²⁹



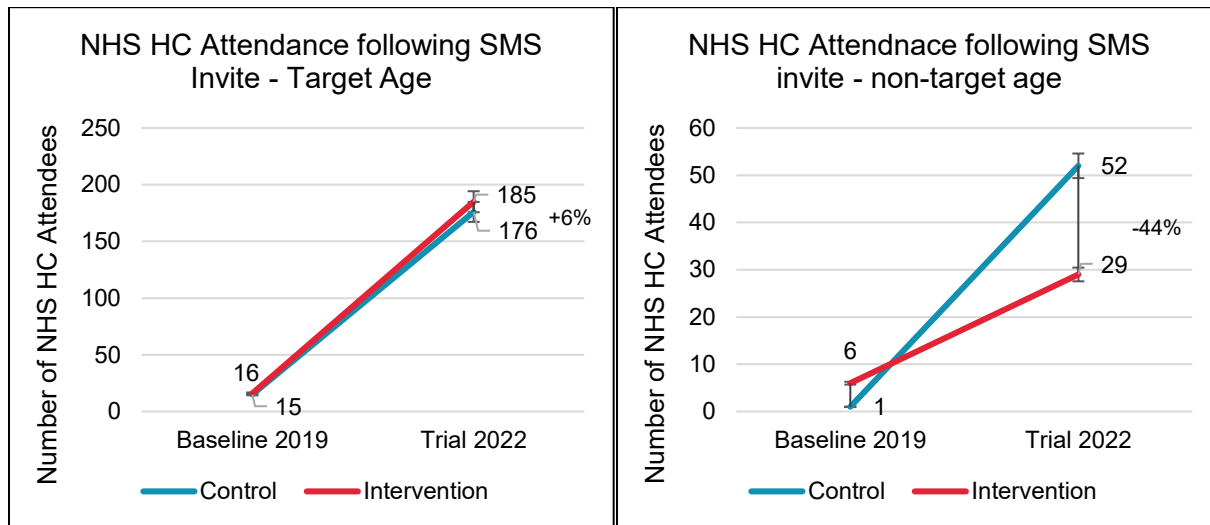
While attendance increased in both control and intervention GPs, SMS invited men's attendance was 4 per cent higher in the intervention group, whereas invited women's attendance was 15 per cent lower in the intervention group compared to the control.

Observed SMS attendance levels for target age

We observed that the intervention was more successful in increasing uptake of the HC for those in our target age group (ages 40 to 59). Attendance for those in our target age group was 6 per cent higher in intervention GP surgeries compared to the control group, whereas for those not in our target age group, attendance in intervention practices was 44 per cent lower than in control.

²⁹ Fig 26: 2019 $p > 0.05$, 2022 $p < 0.00001$; Fig 27: 2019 $p = .01$, 2022 $p < 0.00001$

Fig. 28 and 29³⁰

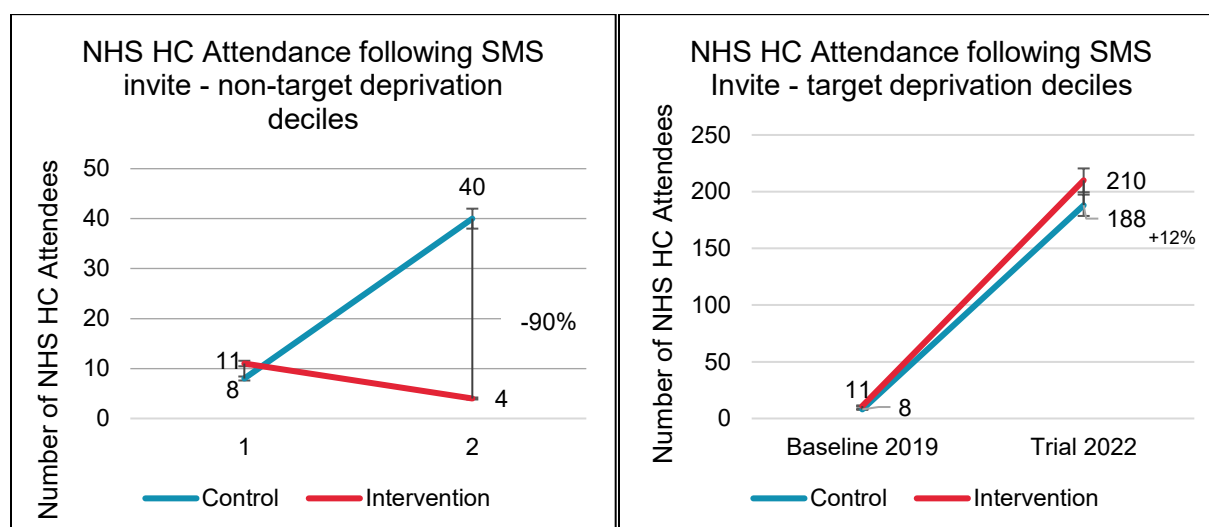


³⁰ Fig 28: 2019 $p > 0.05$, 2022 $p < 0.0001$; Fig 29: 2019 $p = 0.02$, 2022 $p < 0.00001$

Observed SMS attendance levels for target deprivation deciles

We observed that the intervention was more successful in increasing uptake of the HC for those in our target deprivation deciles (1 to 4). Attendance was 12 per cent higher in intervention GP surgeries compared to the control group, whereas for those not in our target deprivation decile, attendance in intervention practices was 90 per cent lower than in control.

Fig. 30 and 31³¹: Attendance following SMS invite by deprivation deciles



Attendance of non target groups (by age and dep. decile) has been lower in the intervention than the control group, further suggesting the voice note has dissuaded the patients that were not targeted.

This is in contrast with the reported booking data, which doesn't indicate significant difference in booking / inquiries by age or perceived income levels.

Overall, the data suggests that alignment between the target profile and the receiver is essential.

³¹ Fig 30: 2019 $p > 0.05$, 2022 $p < 0.0001$; Fig 31: 2019 $p > 0.05$, 2022 $p < 0.00001$

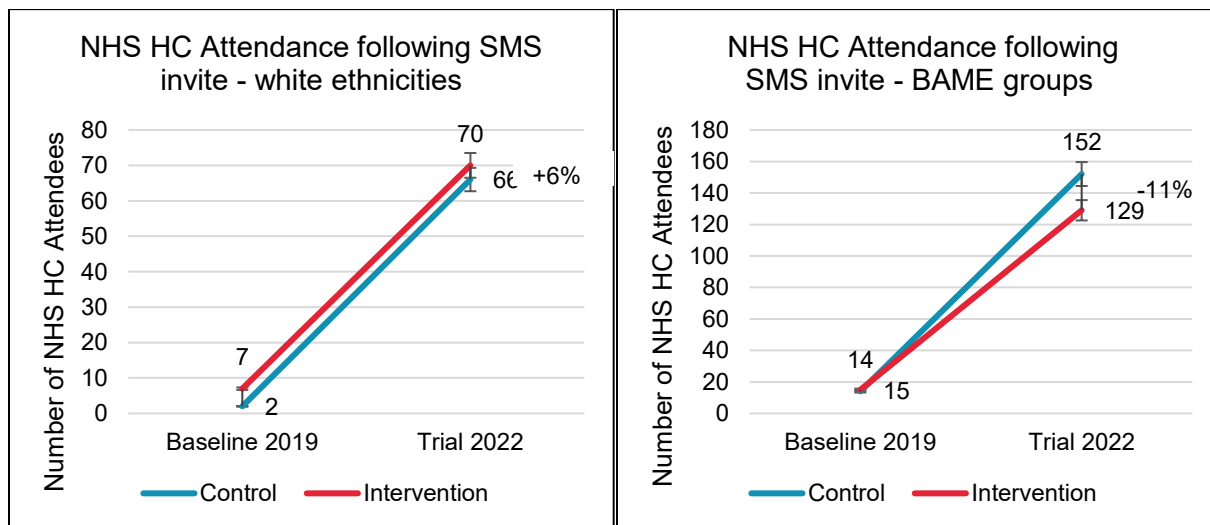
Observed SMS attendance levels by ethnicity

While ethnicity was not included in the parameters for our target group, we collected data on ethnicity to assess the impact of the intervention on different ethnicities.

We observed that attendance was 11per cent lower in intervention GPs for BAME groups, whereas attendance was 6per cent higher for white ethnicities in intervention GPs, therefore suggesting that the intervention has been slightly more successful for white males.

More importantly, it would appear that the paradoxical effect of the intervention (depressing attendance for non target groups) has been particularly strong for BAME women whose attendance in the intervention group has dropped more than for white women.

Fig. 32 and 33³²



³² Fig 32: 2019 $p < 0.01$, 2022 $p < 0.00001$; Fig 33: 2019 $p > 0.05$, 2022 $p < 0.01$

Fig. 34 and 35: Observed attendance levels for BAME Men and Women³³

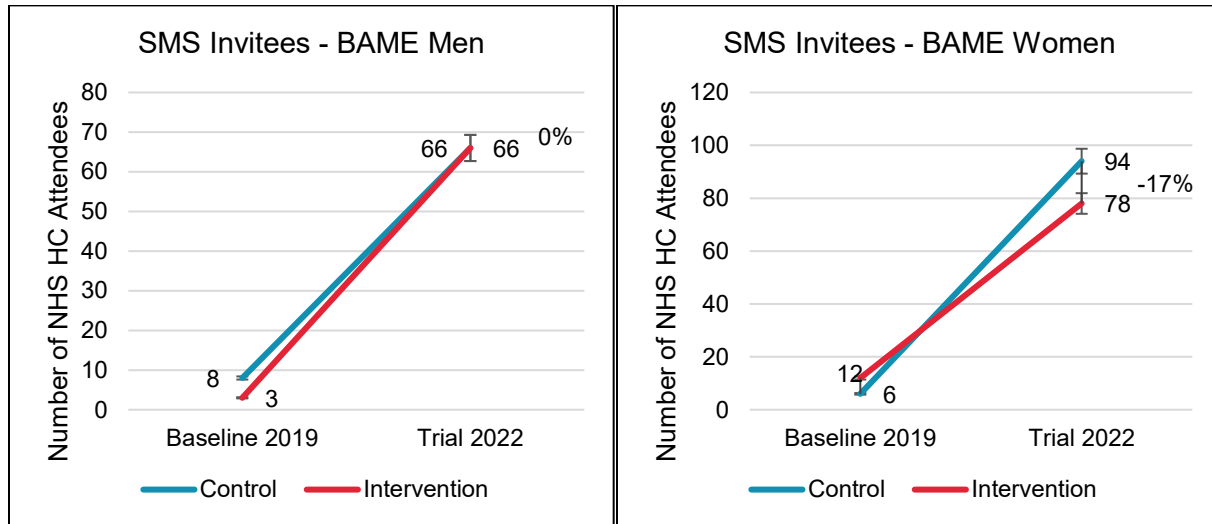
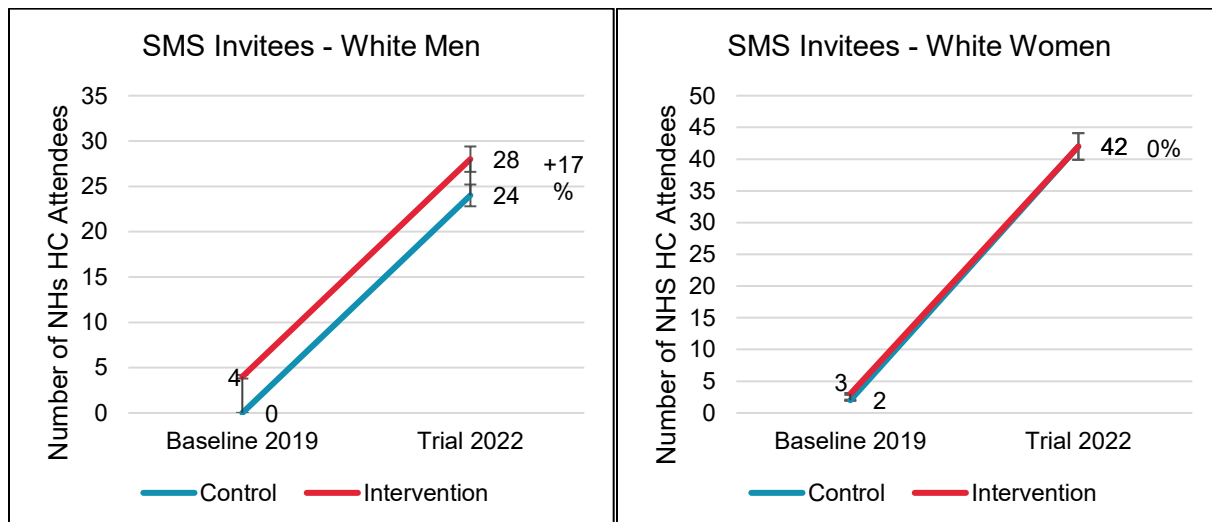


Fig. 36 and 37³⁴: Observed attendance levels for white men and white women



³³ Fig 34: 2019 $p > 0.05$, 2022 $p = 0.001$; Fig 35: 2019 $p < 0.01$, 2022 $p < 0.00001$

³⁴ Fig 36: 2019 $p > 0.05$, 2022 $p > 0.05$; Fig 37: 2019 $p > 0.05$, 2022 $p = 0.01$

E. Data Context

Reported booking data

Three GP surgeries in the intervention group, Lower Clapton in City and Hackney, Wood Lane in Havering, and Wapping Practice in Tower Hamlets noted such an increase in booking requests for the NHS HC that they were unable to book in everyone due to lack of capacity, staff sickness/coronavirus, different workloads, not having a designated person for call and recall, and Health Care Assistant appointment capacity.

Observed attendance data

Evolution of number of invites from 2019 to 2022

The number of coded invites has increased substantially between the baseline period and trial period, with the volume of coded invites increasing nearly ten fold from 883 invites in the baseline to 8,151 in the trial period.

Overall, the volume of SMS invites out of invites (coded) total increased considerably between our baseline and trial period, at an average rate of 2,123per cent in control and intervention practices.

Share of text invites (like for like time period)

As mentioned, the share of text attendance as part of overall attendance was an important factor to evaluate the intervention.

Surgeries at large are relying more on SMS invites, with SMS invites across all practices constituting 83per cent of coded invites in the 2022 trial period, compared to 37per cent in the 2019 baseline period.

Statistical significance tests

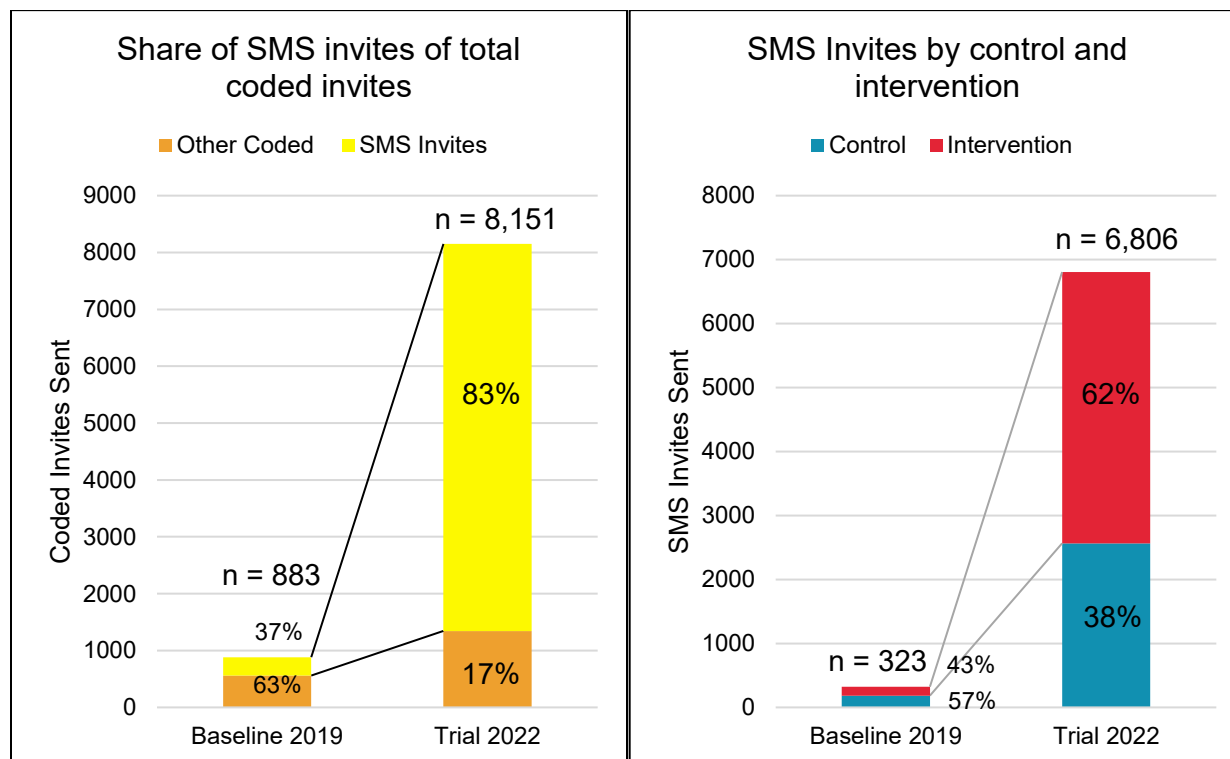
The statistical significance of observed attendance data has been tested for yearly datasets using the z score, measuring p for the population invited vs. sample that attended for both control and intervention groups.

Please note that the sample size (and therefore statistical significance) for the 2019 is lower than for 2022, as practices hadn't yet adopted SMS invites as the primary invite method.

Implications

Surgeries in the intervention have sent 62 per cent of SMS invites in the trial period. As a result, observed attendance (in absolute numbers) is our preferred metric to assess the impact of the intervention.

Fig. 34 and 35



Limitations

This trial had some limitations, including:

- A brief hiatus period in February 2022 due to the COVID-19 Omicron wave in the UK, where we postponed the trial as to not increase the burden on GPs who were potentially dealing with a large influx of coronavirus patients.
- Three intervention GP practices reported that they were unable to book in all patients who inquired about booking an NHS HC.

- The trial was by nature limited in time, thus impact may have overrun the time frame for our data set.
- The text message and voice note were only delivered in English, thus potentially excluding those who are not native speakers and people without phones.
- The AccuRx system which sends the SMS invite and EMIS do not have the technological capabilities to track voice note listening.

F. Future Recommendations

Voice notes

- The intervention did increase men's uptake of the NHS HC more than women. Therefore we recommend that more gender specific voice notes be distributed in the future to target women.
- We would recommend that the voice note and behaviourally informed invite be available in more languages.
- Practices could also attach the voice note or a personalised voice note (based on gender and/or language) to email invites, or provide the link on letter invites.
- One practice noted that the language of "I've reserved a spot for your check", made patients "feel special" that there was a slot saved just for them. This language is effective at ensuring people book in, however this language can be counterproductive if the GP surgery does not have the operational capacity to book in all those who want to attend a HC.
- The very high number of SMS invites sent by some practices may have also dissuaded some potential attendees, as several practices in the intervention group noted that they could not book in everyone who wanted an NHS Health Check. Therefore, we recommend that practices send a proportional number of invites that match anticipated bookings and practice capacity.
- We recommend further testing of language in the text invite which addresses more or other behavioural drivers identified in our insights gathering phase.
- In future interventions, an above the line communications campaign to increase awareness of the NHS HC would also be useful to drive uptake as the most prominent barrier we observed was simply a lack of awareness of the HC.

Conclusion

Objective

This section will conclude the report by outlining the next steps for the consortium and key learnings.

- A. Discussion
- B. How the findings will be used: next steps for the consortium
- C. Challenges and Learnings
- D. Authors
- E. Citation
- F. Acknowledgements

A. Discussion

To conclude our behaviourally informed text message invite to the NHS Health Check has had a positive outcome for our target group by increasing the number of NHS HC attendees compared to the standard control text message invite across the seven north east London councils by 20per cent.

By utilising the ‘people like me’ concept in our intervention and applying behavioural motivations designed to increase uptake of the NHS HC in our target group such as social proofing, attention/simplicity, and optimism bias, the intervention increased uptake of the NHS HC in intervention practices relative to control.

However, the intervention has had a paradoxical and unintended effect on the populations outside the target group (women and older men in particular) whose attendance to the HC were depressed in the intervention group.

Future interventions based on this behavioural principle should be carefully tailored to each demographic group to insure its efficiency and limit possible unintended negative consequences.

As the trial was run over eight weeks, it is unknown if there will be a continued increase in booking and/or NHS HC attendance overall and for our target group, though this may be noted in quarterly data received by councils via their Health Check dashboards.

B. How the findings will be used: Next steps as a consortium

A key facet of this project was to foster cross borough collaboration and explore the use of the consortium approach for behavioural insights and behavioural science research. Upskilling members of the councils on basic behavioural science such as the ABCD framework was also an important outcome, especially with the use of the 'behavioural toolkit' designed by UNPITCHD for future reference for the members of the councils.

As the toolkit contains both the process of the entire project from alignment to trial completion, with and examples of behavioural science interventions in the 'stimulus gallery', it should provide a holistic reference point for the councils to emulate the trial.

General key outputs and work to be taken forward:

- The consortium approach allowed for relationships between councils to be constructed for future partnerships. In monthly consortium meetings, UNPITCHD designed collaborative exercises and activities in the alignment, identify, and design phases for the councils to work together to design potential interventions.
- We will be sharing our findings, project process, methods, and toolkit with the NHS Health Check London Network in July 2022, as well as the wider group of NHS HC leads nationally across England.
- We collected a very large dataset via our EMIS extraction, allowing us to examine NHS HC attendance behaviours for a variety of demographics. The raw dataset will be shared with respective councils.
- When PMs receive their quarterly NHS HC data (at the end of June) they may notice a continued increase in NHS HC attendance at intervention practices as a result of our new text, which we were unable to track within our limited time frame for this project.

- General upskilling of councils in behavioural science alongside the toolkit as a manual for future trials and behavioural science projects.

Councils' next steps:

- Councils will take forward learning around data management and project roles, specifically the importance of ensuring data availability and extraction as well as having an analysis plan before trial.
- Councils now have knowledge of the landscape and barriers with working across NEL, and have relationships with other PH teams for future work. They also are aware of the importance of collaboration with internal and external partners.
- In future projects, PMs have noted that they:
 - Will use the trial as an example of the importance of segmenting the audience of a behavioural science trial.
 - Will focus on targeting and tailoring communications and being more strategic about targeting specific groups when using behavioural insights to improve services.
 - Will be using voice notes and 'people like you' in a future SMS campaign.
 - Will be applying behavioural science to other areas of public health.
 - Will continue work and explore additional voice notes.

C. Challenges and Learnings

Data

It is crucial to ensure data collection methods as early as possible for trials of this nature, due to the sensitive nature of working with healthcare data as well as navigating the institutions and structures of public health. Different interventions will have different data collection needs and methods, but it is important that once the intervention is decided upon that a clear pathway to data collection is established, through a data access group, manual collection (at GPs or otherwise), or via the CEG with data protection principles in place.

As mentioned in the limitations section, there are also certain limitations with regards to data collection which can limit the types of interventions conducted as well as the ability to measure the results of certain interventions.

In further NHS HC trials, it would be prudent to run the trial for a quarter, with a new invite or intervention being issued at the start with the effect measured over a longer time period to determine the full impact. This would diminish the chance that people who booked their NHS HC after receiving the treatment attended after the trial has ended. In terms of data collection, this would also alleviate the burden of data collection as councils receive some NHS HC data quarterly

Allies

Mapping out institutions and groups, and their purposes and partners for those unfamiliar with healthcare is an important exercise. For example, understanding the role of potential allies such as the CEG, NHS Health Check leads, information governance officers, community engagement officers/groups, and the Clinical Commissioning Group (CCG) is crucial.

Specifically, we found that working with community engagement officers/groups in the insights gathering phase was very helpful for recruitment, especially for reaching our target profile. Ensuring that information governance officers in boroughs were updated at least monthly was helpful particularly when it came to writing and getting feedback on a data sharing agreement, as they were already aware of the trial and its aims and purposes.

Project Management

For managing a project at consortium (NEL) level, it was essential to have a centralised person responsible for managing and actively encouraging borough to borough collaboration, especially at the monthly workshops. Council project managers should also bring in key team members (for example, community engagement officers, other public health team members, and those experienced in behavioural science if available)

early to split the workload and efficiently complete tasks, especially in the insights gathering phase for recruiting interviewees.

Different levels of prior experience with behavioural science as well as different availability among consortium members meant that there were often different levels of engagement throughout the consortium. 1 to 1 meetings each week ranging from 10 to 30 minutes between the UNPITCHD and councils' teams were an easy and effective way to ensure that everyone was on track and allowed for additional support from UNPITCHD where needed.

Governance

Clear activities and responsibilities for each week should be outlined in a shared place (email, slack, shared doc, or other). We conducted 1 to 1 meetings each week between borough PMs and the UNPITCHD project manager, as well as issued a weekly roundup email detailing the accomplishments of that week, tasks for the next week, and reminders for outstanding tasks.

Collaboration between boroughs can be difficult to foster organically – time and attention should be devoted to this during workshops and other activities if possible to foster relationships between councils.

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E. Citation

Please cite as:

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F. Acknowledgements

We would like to give special thanks to the LGA team, Rhian Gladman, Tom Denman, and Iman Adaci for their continued support throughout this project. We would also like to thank the Clinical Effectiveness Group at Queen Mary University of London, particularly Luis Taquias, for their dedication to this project and increasing access to healthcare in London.

Date Submitted: 30 June 2022

Appendix

This section contains materials for the project which may be of interest.

- A. Recruitment Screener for focus groups
- B. Consent form for interviews
- C. Topic guide for targets
- D. Topic guide for GPs
- E. Survey questions
- F. Data availability questionnaire
- G. Survey for practices
- H. Power Analysis for Sample Size
- I. Recruitment Materials for GP Practices

Recruitment Screener

Recruitment Screener for LGA Behavioural Insights Healthcare Challenge

Recruitment Background

The Local Government Association is seeking to understand if behavioural interventions can be applied at a consortium level across seven north east London boroughs (Barking and Dagenham, City of London and Hackney, Havering, Redbridge, Newham, Tower Hamlets, and Waltham Forest) to increase access to the NHS health check service.

The research stage currently is exploring barriers to attending NHS Health Checks across the consortium, through focus groups of at least 3 participants in each borough.

The focus groups, on zoom, will explore:

The role of health in people's lives, decisions to seek treatment, and awareness and barriers to uptake of the NHS health check service.

We are looking to interview at least 3 participants in each borough with varied demographic and behavioural features. All of them must be eligible for the NHS Health

Check (between the ages of 40 to 74, with no preexisting conditions screened for in the check, namely heart/cardiovascular disease, diabetes, or chronic kidney disease).

We will need to run one focus group per Council, with 3 attendees in each (21 total)

Each focus group will last up to 120 minutes, online – Incentive GBP60

Interviews to run from Monday November 15th to Friday November 19th.

All zoom interview participants must be:

- a. Between the ages of 40 to 74 and eligible for the NHS Health Check
- b. A resident in one of the seven boroughs in the consortium listed above
- c. 2:1 gender ratio (men:women)
- d. Mix of ethnicities
- e. In national deprivation index deciles 1 to 3; OR
- f. Below national mean of 31,500 GBP
- g. AND/OR living in social housing
- h. AND/OR low education levels (GCSE only/no higher education)
- i. AND/OR receiving benefits/unemployed
- j. Mix of family history of heart disease/diabetes and no family history of those conditions

Are you between the ages of 40 and 74?

- a. Yes
- b. No
 - a. Continue if yes

Have you been diagnosed with heart/cardiovascular disease, diabetes, or chronic kidney disease, or labelled high risk for any of these conditions?

- a. Yes
- b. No
 - a. Continue with no

What age bracket are you in?

- a. 40 to 44
- b. 45 to 49
- c. 50 to 54
- d. 55 to 59
- e. 60 to 64
- f. 65 to 69
- g. 70 to 74
- a. Continue with a through d

What ethnicity are you?

- a. White
- b. Asian or Asian British
- c. Black or African or Caribbean or Black British
- d. Any other ethnic group
- e. Mixed or multiple ethnic groups
- a. Continue with even spread

Which gender do you identify as?

- a. Male
- b. Female
- c. Other
- a. Continue with 2x male, 1x female

What is your postcode?

OPEN ANSWERS (Please record:)

Consent Form

Consent Form LGA Behavioural Insights Research – Healthcare Access	Researchers Lauren Liotti/Stephanie Renucci/Natan Sklair
--	--

Participation in this research study is voluntary . Please circle or highlight your answer for each statement.	For more information contact lauren@unpitchd.com
I have read and understood the study information below dated (15/11/2021), or it has been read to me.	YES/NO
I have been able to ask questions about the study and my questions have been answered to my satisfaction.	YES/NO
I consent voluntarily to be a participant in this study and I understand that I can refuse to answer questions, without having to give reason.	YES/NO
I agree to the interview being audio recorded.	YES/NO
I understand that the information I provide will be used for research publication and that the information will be anonymised.	YES/NO
I agree that my anonymised information can be quoted in research outputs.	YES/NO
I understand that any personal information that can identify me, such as my name, will be kept confidential and not shared with anyone outside of the research team.	YES/NO
I give permission for the (anonymised) information I provide to be deposited in a data archive until appropriate.	YES/NO

I will not share the information discussed in the focus group by the researchers or other participants.	YES/NO
---	--------

Please retain a copy of this consent form.

Participant Name:

Signature

Date

Interviewer Name:

Signature

Date

Project Brief:

The Local Government Association is seeking to understand if behavioural interventions can be applied at a consortium level across seven north east London boroughs (Barking and Dagenham, City of London and Hackney, Havering, Redbridge, Newham, Tower Hamlets, and Waltham Forest) to increase access to the NHS health check service.

The research stage currently is exploring barriers to attending NHS Health Checks across the consortium, through focus groups of at least 3 participants in each borough.

The focus groups, on zoom, will explore:

The role of health in people's lives, decisions to seek treatment, and awareness and barriers to uptake of the NHS health check service.

Interview and Focus Group Topic Guide: Targets

Guidance	Script
Setting up the conversation	<p>Good morning/afternoon</p> <p>My name is <name of interviewer>. We also have <name of note taker> on the line. He/she will be taking notes and may have some questions as well. We really appreciate the time you're taking to speak with us. We really appreciate the time you're taking to speak with us. It'll be about X hours with a break in the middle.</p>

	<p>First off, is it ok if we record the session?</p> <p>We are conducting research in the area to help people with their health. What we will go through now is a few questions. Please be honest wherever you can. The more honest you are, the better we can improve health in the area. If there are any questions you do not feel comfortable answering, please let me know.</p> <p>Please keep in mind that the information you share with us is only for the analysis of the results and are confidential. All of your answers will be anonymous, and if you are uncomfortable answering any of the questions, just let us know.</p> <p>Please keep in mind that the information you share with us is only for the analysis of the results and are confidential, only shared with the research team. All of your answers will be anonymous, and if you are uncomfortable answering any of the questions, just let us know.</p> <p>Before we begin, do you have any questions?</p>
General questions	<p>Tell me about yourself.</p> <p>What do you do for work, what are your hobbies?</p> <p>Tell me about your day to day.</p> <p>What do you do on weekends?</p> <p>Are you involved with any religious activities for example, attending temple, church, mosque, synagogue?</p> <p>Is there anyone you look up to in your community? If so, who?</p> <p>Is there anyone you look up to outside of your community? Who?</p> <p>In what part of the borough do you live?</p> <p>Tell me about your family? Do you live with them? Kids, parents, grandkids, extended family?</p>

	What languages do you speak? What is your first language?
Health questions	<p>How would you rate your physical health from 1 to 10 (1 being extremely bad, 10 is excellent)?</p> <p>In the last 30 days, have you experienced any adverse health symptoms (for example, flu, persistent cough, aches and pains, issues with knees and so on)?</p> <p>When did you last consult someone about your health?</p> <p>When you do consult someone about your health, who do you go to (GP/friend/family/stranger/medical professional)?</p> <p>Do you know about/have you heard of the NHS Health Check?</p> <p>To your understanding, who should go for an NHS Health Check?</p> <p>Who should not go?</p> <p>Have you been for an NHS Health Check in the last five years?</p> <p>If you have heard about the NHS Health Check, where did you hear about it?</p> <p>Would you be comfortable sharing whether you have any health conditions/are taking any medication? (What are they? What medication?)</p> <p>What does your health mean to you?</p> <p>What about your health worries you at the moment? How many days per week do you worry about this/these?</p> <p>What motivates you to be healthy?</p>
Access to healthcare questions	<p>Do you access health services?</p> <p>Which health services do you access?</p> <p>What is your experience of accessing health services?</p> <p>What has prevented you from accessing health services?</p> <p>What GP services are you aware of?</p>

	<p>Where do you go to get information on things that concern you about your health?</p> <p>How close is your nearest GP?</p> <p>How would you get to your GP?</p> <p>Have you been invited for your NHS Health Check?</p> <p>Do you feel you need to go for an NHS Health Check? Why or why not?</p> <p>What might prevent you from going to an NHS Health Check?</p> <p>Do you know how to access the NHS Health Check?</p> <p>What would you do if you wanted an NHS Health Check?</p> <p>How do you like to receive information from medical professionals?</p> <p>Have any of your friends been to an NHS Health Check in the past?</p> <p>If so, how did they access it?</p> <p>Is there someone in your community who you would go to for help accessing health services or an NHS Health Check?</p> <p>If you have had an NHS Health Check, how did you feel about the results and how they were presented and communicated to you?</p>
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Interview Topic Guide: GPs

Guidance	Script
Setting up the conversation	<p>Good morning/afternoon</p> <p>My name is <name of interviewer>. We also have <name of note taker> on the line. He/she will be taking notes and may have some questions as well. We really appreciate the time you're taking to speak with us.</p> <p>We are conducting research in the area to help people with their</p>

	<p>health. What we will go through now is a few questions. Please be honest wherever you can. The more honest you are, the better we can improve health in the area. If there are any questions you do not feel comfortable answering, please let me know.</p> <p>Please keep in mind that the information you share with us is only for the analysis of the results and are confidential. All of your answers will be anonymous, and if you are uncomfortable answering any of the questions, just let us know.</p> <p>We will do a few exercises throughout the interview, but we will guide you. Do you feel comfortable doing so?</p> <p>Before we begin, do you have any questions?</p>
General Questions	<p>Tell me about yourself.</p> <p>Tell me about your work.</p> <p>What are your hobbies?</p> <p>Tell me about your day to day?</p> <p>What do you do on weekends?</p> <p>Are you involved in any religious activities for example, attending temple, church, mosque, synagogue?</p> <p>Are you involved in any community activities in a professional capacity?</p> <p>In what part of the borough do you live?</p> <p>In what part of the borough do you practice?</p> <p>What languages do you speak? What is your first language?</p> <p>How do you find most days at work?</p>

<p>NHS HC Specific Questions</p>	<p>Tell me about your experience with NHS Health Checks, how do you go about doing them?</p> <p>How do patients typically go about booking an NHS Health Check at your practice, and what methods of invites do you use?</p> <p>Do you have anyone assisting you with NHS Health Checks?</p> <p>Are people resistant to NHS Health Checks? Do they list any reasons?</p> <p>What concerns do people mention when conducting NHS Health Checks?</p> <p>Do you follow up after the health checks?</p> <p>What are common issues in the health checks?</p> <p>Any barriers to conducting the health checks?</p> <p>Do patients have barriers in receiving any aspect of the Health Check?</p> <p>Are most of the patients from the area?</p> <p>Do you make any accommodations for people who are struggling to get a health check?</p> <p>Where do you perform the health checks?</p>
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Survey Questions

The survey was created and disseminated via Typeform. Respondents were filtered by location (must be living in one of the consortium boroughs) and two health questions (age and preexisting conditions) to ensure eligibility for the NHS Health Check in our consortium.

Welcome Page: Hi there, we are conducting research and need a few minutes of your time. This short survey will ask you some basic questions, as well as questions about your experience with health and healthcare.

1. In which of the following boroughs do you live?

2. (If resident outside of our consortium) Thank you for your time. As you are not a resident of one of the boroughs in the north east London CCG, we cannot accept responses from you at this time. However, feel free to send the survey to anyone you know who may be eligible.
3. What is your age?
4. (If younger than 40 or older than 74) Thank you for your time. As you are not currently eligible for the NHS health check, we won't be needing you to complete the survey. However, feel free to send the survey to anyone you know who may be eligible.
5. Have you been diagnosed with heart/cardiovascular disease, diabetes, or chronic kidney disease, high blood pressure (hypertension), or labelled high risk for any of these conditions? Or conditions such as: atrial fibrillation, transient ischaemic attack, inherited high cholesterol (familial hypercholesterolemia), heart failure, peripheral arterial disease, stroke, currently prescribed statins to lower cholesterol, or 20per cent or higher risk of getting cardiovascular disease over the next 10 years
6. (If ineligible due to preexisting condition) Thank you for your time. As you are not currently eligible for the NHS health check, we won't be needing you to complete the survey. However, feel free to send the survey to anyone you know who may be eligible.
7. To which gender do you most identify?
8. What is your first language?
9. To which ethnic group do you most belong?
10. What is your relationship status?
11. How many people live in your household?
12. In what sector do you work?
13. What is your household income bracket annually?
14. Who does most of the grocery shopping in your household?
15. Where do you do your grocery shopping?
16. Are you involved in any religious activities?
17. What religious activities are you involved in?

18. List three activities that you typically do on a weekend (hobbies)?
19. Who in your community do you look up to?
20. Is there anyone outside of your community that you look up to?
21. The next section will focus on questions about health and healthcare
22. How would you rate your physical health from 1 to 10 (1 is extremely bad, 10 is excellent)
23. How would you rate your mental health from 1 to 10 (1 is extremely bad, 10 is excellent)
24. Are you registered for a GP in your area?
25. When did you last consult someone about your health?
26. When you do consult someone about your health, who do you go to? For example, GP, family, friend, medical professional
27. Do you have any health conditions/are you taking any medication? If so, what health conditions do you have or what are you taking medication for?
28. How many days per week do you worry about your health?
29. What about your health worries you at the moment?
30. Which health services have you accessed? For example, GP, emergency services/A and E, pharmacy
31. What is your experience in accessing health services?
32. Where do you go to get information on things that concern you about your health?
33. How many minutes would it take you to get to your nearest GP?
34. Have you been invited for an NHS Health Check? The NHS Health Check is a free check provided to all eligible patients between the ages of 40-74 designed to spot early signs of stroke, kidney disease, heart disease, type 2 diabetes or dementia
35. Have you been invited for an NHS Health Check in the last five years?
36. Do you know how to access the NHS Health Check (if you are not invited by a GP)?
37. Where did you hear about the NHS Health Check?
38. How did you book your NHS Health Check?

39. Did you have any barriers in booking or getting to your NHS Health Check?
40. Do you feel you need to go for an NHS Health Check? Why or why not?
41. What might prevent you from going to an NHS Health Check?
42. What would you do if you wanted an NHS Health Check?
43. How do you like to receive information from medical professionals?
44. How many of your friends do you know who have been to an NHS Health Check?
45. If you have had an NHS HC, how did you feel about the results and how they were presented and communicated to you?

Thank you for your time!

The information you have provided will help us to improve services in your area. Feel free to share this survey with a friend or family member.

Data Availability Questionnaire and Answers

Council	Is the data available at patient level?	Can we get patient level data on gender?	Patient level data on age or DOB?	Patient level data on ethnicity?	Patient level data on postcode or LSOA?	Patient level data on Q risk score or smoking status?	Has the patient been invited to the HC yes/no? Date sent?	Which type of invite was received? SMS, letter, or other?
(Council Name)	Yes	Yes	Yes, age. DOB is patient	Yes	Yes, LSOA	Yes	Yes, incl. dates and	Sometimes, if invite type has

			identifiable				how many invites sent	been coded
	Has the patient responded to or booked the HC? Date of booking?	Has the patient attended their Health Check? Date?	Date range of past patient level data availability?	Can we edit/add to the invites?	How often do you extract this data? Could you do this more frequently?	Email addresses or phone number of patient?	How many Health Checks invitees are sent out per week?	Are we able to reach out to patients on behalf of GP practices?
(Council Name)	No	Yes, also from recorded Q-risk score (though this is not always from	From July 2015	Yes. Letter amendments sound easy but are practically difficult to do. SMS	Quarterly. More frequently by request and cost.	No, PID.	Review annually, not weekly. Can estimate based on	No.

		NHS HC)		and telepho ne are straightf orward as calls are not scripted, SMS requires changin g a templat e in AccuRx.			NHS HC dash boar ds.	
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Survey for Practices

Hello! Thank you for participating in the LGA BI NHS Health Check Trial. To finalise participation, please take 5 minutes to let us know about your practice's experience.

1. What is the name of your practice?
2. What is your role at the practice?

The following questions will ask about NHS Health Check **booking rates** and **interest in booking** at your practice during the trial (March 7th to April 29th 2022).

- a. Have you noticed an increase in people **inquiring about booking** an NHS Health Check at your practice during the intervention (March 7th to April 29th 2022)?
 - i. 1 – it did not increase booking rates, 5 – we had an overwhelmingly positive response

- b. Have you noticed an increase in NHS Health Check **booking rates** at your practice since the onset of the intervention?
 - i. 1 – it did not increase booking rates, 5 – we had an overwhelmingly positive response
- 3. Have you noticed that more people **inquired about and/or booked** an NHS Health check at your practice during the intervention (March 7 to April 29 2022)?
Tick all genders that apply.
 - a. Men
 - b. Women
 - c. Other
- 4. Have you noticed that more people **inquired about and/or booked** an NHS Health check at your practice during the intervention (March 7 to April 29 2022)?
Tick all age groups that apply.
 - a. Between 40 and 59
 - b. Between 60 and 74
- 5. Have you noticed that more **people inquired about and/or booked** an NHS Health check at your practice during the intervention (March 7 to April 29 2022)?
Tick all income groups that apply (if known)?
 - a. Lower Income
 - b. Middle Income
 - c. Upper Income

The following questions will ask about NHS Health Check attendance rates at your practice during the trial (March 7 to April 29 2022)

- 6. Have you noticed that the intervention increased NHS HC attendance rates at your practices during the trial (March 7 to April 29 2022)?
 - i. 1 – it did not increase attendance rates, 5 – we had an overwhelmingly positive response
- 7. Have you noticed that the intervention increased NHS Health Check attendance rates at your practice during the intervention (March 7 to April 29 2022)? Tick all genders that apply.
 - a. Men

- b. Women
 - c. Other
8. Have you noticed that the intervention increased NHS Health Check attendance rates at your practice during the intervention (March 7 to April 29 2022)? Tick all age groups that apply.
- a. Between 40 and 59
 - b. Between 60 and 74
9. Have you noticed that the intervention increased NHS Health Check attendance rates at your practice during the intervention (March 7 to April 29 2022)? Tick all income groups that apply (if known)?
- a. Lower Income
 - b. Middle Income
 - c. Upper Income
10. Was your practice able to book in everyone who wanted an NHS Health Check in recent weeks?
- a. Yes
 - b. Somewhat
 - c. No
11. If no, why was the practice not able to book in patients for their Health Check?
12. How does your practice send out invites to NHS Health Checks?
- a. SMS/Text Message
 - b. Verbal/opportunistic
 - c. Letter
 - d. Email
 - e. Telephone
 - f. Other
13. What is the approximate proportion of each method of invite sent out?
14. Has this changed since 2019?
15. Did patients who attended their Health Check provide any feedback on the invite message and/or voice note?

Thank you for taking the time to complete this survey. Your answers will help us to analyse the impact of the trial.

GP Practice Recruitment Materials

[GP Pitch deck](#)

[Sample Letter to PCN Managers](#)

Sample Email:

I am emailing you as the NHS Health Check lead to ask for your help with a pilot we are hoping to launch soon, aimed at improving the uptake of NHS Health Checks across the borough. We need to recruit GP practices to test a new invite system to improve uptake of NHS Health Check amongst our patients for a brief period of 6 weeks.

From 7th March to 23rd April, we will ask participating surgeries to:

- ✓ Conduct NHS Health Checks
- ✓ Spend roughly 30 minutes per week submitting [HC attendance data](#)
- ✓ Share past HC data (1st quarter of 2019)

By joining the trial, you'll have the opportunity to:

- Improve NHS HC revenue potentials for your practice
- Contribute to total health gains by increasing HC attendance, estimated over £30,000 pounds by just a 5 per cent increase in uptake across Northeast London
- Be part of the first behavioural insights trial in NEL CCG

I have attached a project brief of what you can expect if you participated.

I would be happy to provide you with further information if you needed.

Please let me know by Friday 18th February if you would like to express an interest in participating in this extremely novel pilot.

Power Analysis

The power analysis was conducted to evaluate, based on our estimations of the number of NHS HCs carried out in GP practices each week, how many GPs we would need to recruit.

We estimated, using information from an online dashboard available to PMs, that GPs sent a rough average of 35 invites to the NHS HC per week. In order to achieve a sample size of $n=1,000$, and $n=140$ data points per council, we would need at least 1 and ideally up to 3 volunteer GP surgeries per council. This would allow us to have at least 250 patient level observations in each segment of the difference in difference (for example baseline time period, control practices).

The power analysis was conducted using this [online tool](#).

Initial power analysis (before running trial and receiving full dataset)

ideas 42
A/B Testing Tool

Overview Prepare Randomize Analyze

1) ENTER OUTCOMES → 2) DEFINE VERSIONS → 3) CALCULATE SAMPLE SIZE

☒ My outcome is a percentage

Baseline Rate ⓘ
15 %

Version A Sample Size: ⓘ
500

Version B Sample Size: ⓘ
500

Calculate < Back to Basic Calculator

Results:

Goal	Increase attendance to the NHS HC
Touchpoint	New SMS with a voice note
Version A Title	Standard SMS
Version B Title	New SMS

500 people get Version A
500 people get Version B.

You should be able to claim your test had an effect if you see at least a **6.3** percentage point difference between Version A and B.
You don't seem to have enough people to do a strong test. Can you add more people to your sample?

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